art

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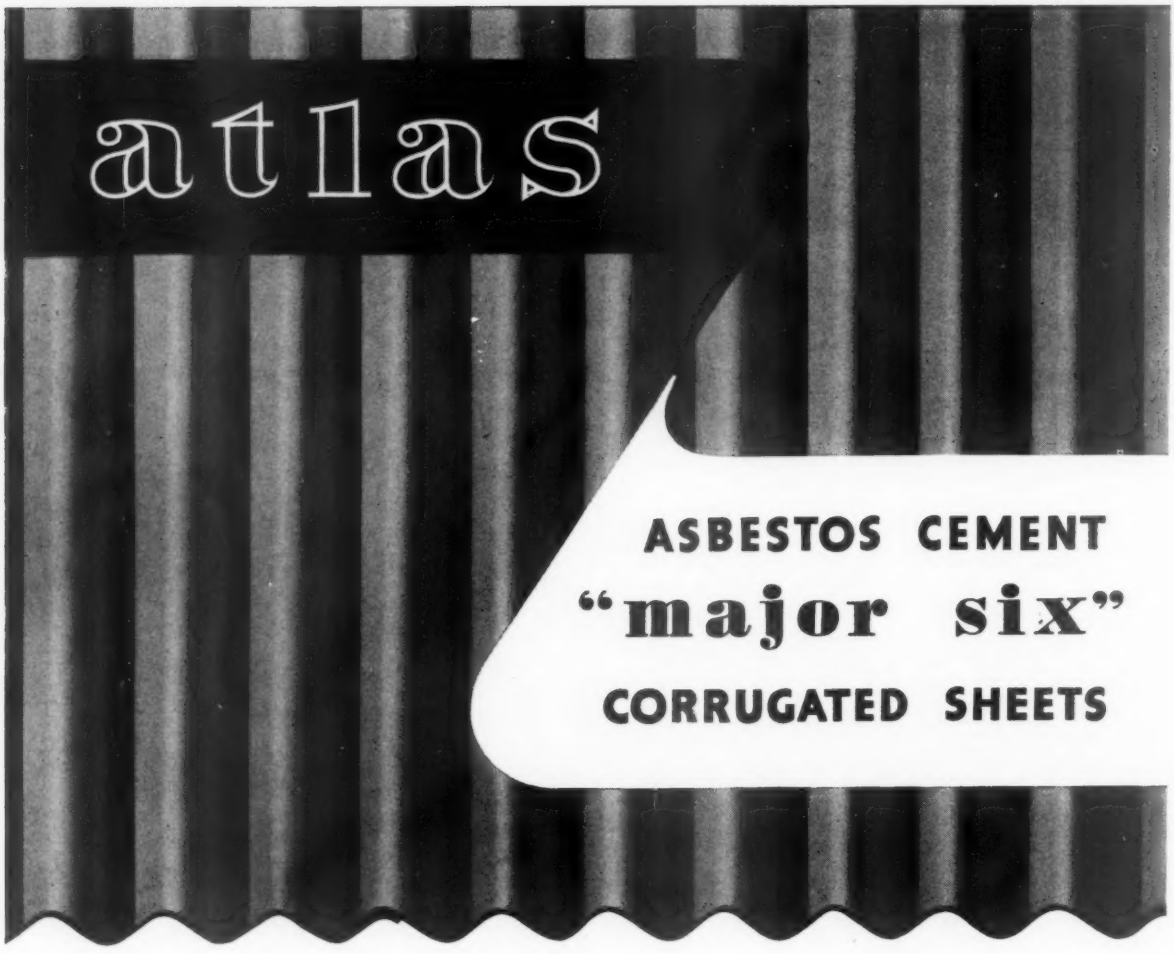
Most of the events that we brush off as accidents, unprogrammed products of apparently random causes, will often prove on inspection to be manifestations of another, disregarded order, some alien mode of classification. Such a classificatory cause, military tidy-mindedness in putting one's gloves with one's helmet, accounts for the apparently accidental minimum anthropomorphic symbols for Guardsmen, below. In the *Farmacia della Scala*, described within on p. 124, a concealed classification depending on the size of bottle-base that can be accepted by the stands distributed apparently at random among the writhing rococo shelving, above, makes it impossible for even the most casual dispenser to replace the bottles in a manner that can offend the eye. The apotheosis of such concealed control over accidents appears in gardening—broadly and expansively in the English tradition, closely and systematically in the Japanese, described on p. 128, and seen diagrammatically behind these words.

THE ARCHITECTURAL REVIEW VOLUME CXIX NUMBER 710 FEBRUARY 1956 FIVE SHILLINGS



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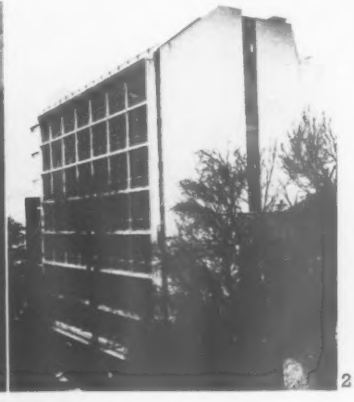
MARGINALIA

OFFICE BUILDINGS IN MILAN Leadership in Italian architecture, which has seemed over the past two or three years to be slipping down to Rome, has returned to Milan with two new office-blocks, one completed and one projected, and neither of them having quite the qualities which one associates with Milanese Rationalism. Superficially, at least, the new Olivetti building, 1, presents to the Via Clerici elevations which have all the regularity and mechanistic qualities which go with *Razionalismo*, but a three-quarter rear view shows asymmetrical gables and a vertical window-slit, 2, which suggest a very different approach. The design of this functionally impeccable machine-for-administering-in is the work of G-A. Bernasconi, Annibale Fiocchi and Marcello Nizzoli, and it is credibly reported that the last named, famous as the stylist of Olivetti's products, also 'styled' the building on the Via Clerici side, and, indeed, the flickering rhythm of the close-louvred sun-breaker is a far more effective eye-trap than the more subdued, but equally efficient, treatment of the other façade.

1



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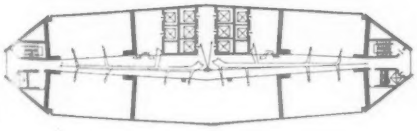

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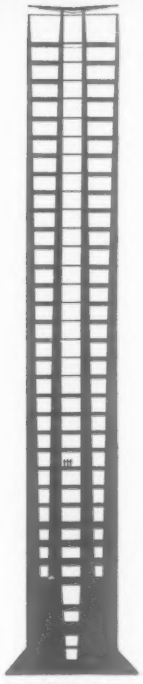


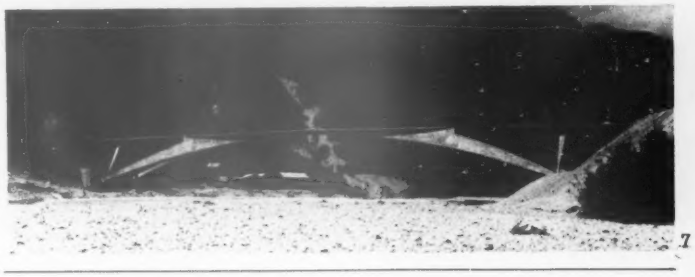
5

(3, 4 & 5, Edilizia Moderna)

The Pirelli office block project, 3, which looks at first sight so much more like a 'styling job,' derives its extraordinary form from an approach to functional and structural problems which is, on examination, far closer to Rationalism than that of the Olivetti design. The work of a formidable team, in which Gio Ponti, with his great experience of office-block design, and Pier-Luigi Nervi, with his untrammelled approach to structures, were the moving spirits, this striking design was evolved slowly and carefully from a basic layout which conformed to the flat-slab aesthetic currently in favour in Milan. Continuous reconsideration of circulation needs and structural possibilities, and accommodation of a largely predetermined office module between them, eventually produced the organically and inseparably related solutions of the boat-shaped plan and the double-bifurcated column structure, 4 & 5.

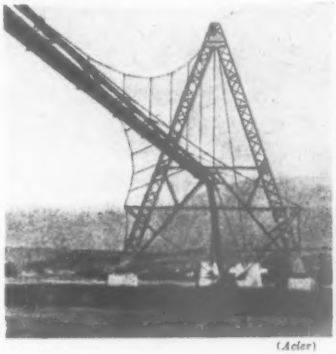
PROGRESS IN BRIDGE STRUCTURES The need for caution in accepting the evidence of the eyes is underlined by the dashing and economical structure of the *Ponte-Tubo di Gardona* which will carry water for the Maè hydro-electric project over the river Piave in north Italy. Its designer, Carlo Berghinz, has spoken of himself as a member of a 'Scuola Maillartiana' and comparison of his bridge, 7, with Maillart's well-known bridge at Felsegg on the Thun, 6, would seem to bear this out. But Berghinz is only a follower of the Master in the more progressive sense of one who follows in order to go farther. Whereas Maillart, like so many pioneers, has solved his structural problems by rationalizing his structure down to its fundamental disparate elements, evolving each member separately and flatly on the drawing board and assembling them into an ideal pin-jointed structure whose over-all mathematics are simple, Berghinz's slim structure is virtually monolithic and plastic in conception. It has no hinges, either at crown or abutments, and must therefore be considered as an encastered arch, functioning perhaps in cantilever to some extent, and the whole structure is therefore statically indeterminate. The main structural arch consists of a box beam which thickens away from the crown and, at its deepest point, splits into two separate box beams either side, tapering down to the abutments. Two smaller pairs of tapered legs rise vertically from the abutments to carry the landward portions of the pipe-platform, and these (to cope with thermal expansion) are grounded on the only hinges in the structure. Thus, though so visually similar in form to Maillart's work, the *Ponte di Gardona* is a much subtler, more integrated and more advanced structure. It may even mark the point at which we have to relegate Maillart to a place alongside Perret, among the Primitives of Ferro-Concrete.

6



7

QUADRICABLE BRIDGE. Part of a remarkable project for feeding surplus furnace gases from the Saar into the urban supply net-work of Paris, over 300 km. distant, this bridge which carries the pipe-main across the Meuse is notable not only for its elegant form, but also for the possibilities of its four-cable structure. Developed by a research team of the Baudin-Chateauneuf organization, it consists of a central cable in tension, to which the load is directly attached, steadied by three other cables disposed radially around it, and drawn into parabolic curves by the short stays at right angles to the central cable. All four cables are locked together by a central 'knot' and the resulting structure is so stable that it cannot be distorted even by asymmetrically displaced loads. For this reason it could be used to carry the running rails of overhead railways, etc., without risk of derailment due to local distortions of the rails, over far wider spans than are currently possible, and thus offers great possibilities in the opening up of rough, roadless terrains.



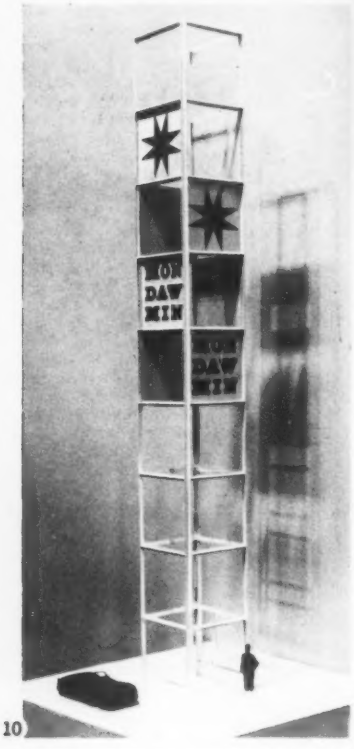
8

(Acier)

EXURBIA NOT NECESSARILY SUBTOPIA Although the potentialities of visual squalor latent in the American idealization of the ultra-low density motorized suburb hardly bear contemplation, the fact remains that some of the brightest American designers are entangled with Exurbian development, and particularly its most characteristic building type, the super-market (see Marginalia in AR for December, 1955). At a recent Museum of Modern Art Exhibition of graphic design by Bruno Munari and Alvin Lustig, the latter showed models of his Northland shopping-centre sign (which has been erected), 9, and

9

the Mon-Daw-Min market sign, 10, still at project stage. Both are handsome examples of that combined interest in structuralism and form-as-communication which is equally to be found in the thoughts and works of Charles Eames and Gyorgy Kepes, and both are examples of possible developments for the better in roadside advertising that could be useful to English designers of (for instance) motels—a problem which Diana Rowntree discusses on pages 110, ff.



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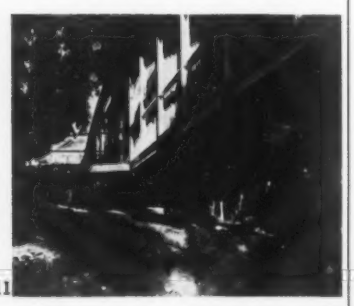
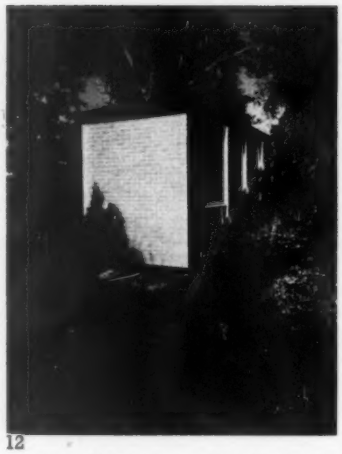
HOUSE IN THE AIR The ability to float a building clear of the ground is one of those potentialities of Twentieth Century structure which the pioneers have praised—only to decline it, or fumble it. Le Corbusier, having toyed with it, did not fully exploit it until Marseilles; Buckminster Fuller having achieved it in structural fact with his Beech House, then muddled the issue visually. It seems to have been left to the not-so-famous to develop this idea; various examples have been seen from time to time, and the latest, most sophisticated and assured,


11

comes from Australia. The functional excuse here was a difficult site bisected by a creek which had to be left unencumbered; the structural solution evolved by its architects (Grounds, Romberg and Boyd) was an unusual one—to sling a single-storey house of Miesian aspect and wedge-shaped plan between two lattice arches, grounded on massive


12

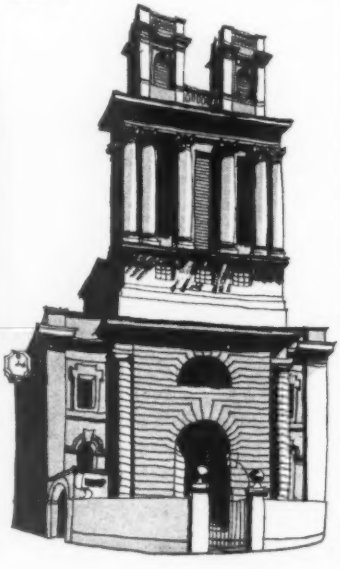
concrete abutments, 11. The levitation of the building block not only affords dramatic views from down in the creek-bed, but also makes a carport and covered play space under the house, 12.

St. Mary Woolnoth

Church guides are at as low an ebb as church architecture in Britain today, for the same reasons—confused thinking, ill-advised compromise and inadequate powers of expression. To be able to mention one* which is accurate, comprehensive without being prolix, and attractively produced is a pleasant surprise, especially as it describes Hawksmoor's St. Mary Woolnoth, newly reconstituted as a Guild Church.

What this guide has, in addition, is a pair of drawings by Gordon Cullen—an interior, managing to suggest by understatement the incredible interlocking space, and a view of the West front (reproduced below) which at last realizes in two dimensions Hawksmoor's bleak but passionate nobility, and belief in volume for its own sake, and not as some other determinant's by-blow. Even the best photograph has to show the mess of Bank tube station underneath it, and the less intelligent dollops of City neo-Georgian around it. Hawksmoor's plan for Cambridge vitalized the town by dispersing energy, spearing each intersection with an obelisk. St. Mary Woolnoth vitalizes by concentration: a power house of energy which

St. Mary Woolnoth, a short guide by Stephan Hopkinson, vicar. Typography by Ruari McLean.



charges up the six-way crossroads. The charge stays with the observer a long way east or west until misapplied Portland stone becomes too much for it.

One plea—can somebody move the gallery fronts forward? They are still pinned to the wall, saved by unexpected Butterfieldian mercy. The gallery created need not carry any seats, but it is an essential part of Hawksmoor's composition—the last number in the combination lock.

CORRESPONDENCE

The Bryant Index

To the Editors,

SIRS,—I wish to bring to the notice of ARCHITECTURAL REVIEW readers the existence of the Bryant County House Index.

This has received far less publicity than its scholastic importance deserves and to the world of historic research and genealogy still remains comparatively unknown. It consists of above 140,000 cards, five by three inches, catalogued under house-place-names with an efficient cross reference of past and present owners. Nearly every known example of country domestic architecture up to 1840, existing or otherwise, is included in this comprehensive survey of architectural histriography. Each card supplies, besides the genealogical account: brief historical statements; notice of sales and auctions; attachment and collations from relevant newspaper material; information from wide sources, including old topographical guides; illustrations restricted to card size by print and photograph; and a most important bibliography.

The compilation is the result of twenty years' spare-time work by Mr. Gilbert E. Bryant, and it must be emphasized that he has but laid the foundations and provided a directive for future research into the indexing of English Country Houses. One must consider it a sad reflection upon ourselves that the value and potentiality of this Index has only been satisfactorily recognized outside this country, notably in America, where Harvard University is anxious to acquire it or at least a complete copy of its information to date.

The future is debatable as no endowment has been offered to find it a suitable home and support the badly needed research worker whose task of classification will be a gargantuan one. It must be realized that the obvious corollary to this Index is the National Buildings Record which does not possess an historical compilation. This latter organization could gain great guidance from the Index's comprehensiveness.

Yours, etc.,
JOHN HARRIS.
London, S.W.7.

Obnoxious Matter

To the Editors,

SIRS,—After reading in Marginalia (AR, October 1955), *Litter in the Parks*, it occurs to me you might be interested in a new piece of California legislation by which it became an offence to drop garbage 'or any other obnoxious matter' on any right-of-way or highway. This law is being enforced with splendid results, although the maximum penalty, six months in prison or a $500.00 fine, is seldom imposed in full.

Surely the dropping of litter is at least as reprehensible as petty theft or attempted rape, and the prospect of a stiff fine is a far more effective deterrent than a gentle admonition on a noticeboard!

Yours, etc.,
DAVID PLEYDELL-BOUVERIE.
Glen Ellen, California.

Brian Bannantyne Lewis, architect of the National University at Canberra, was born in Tasmania in 1906, is married to Hilary Lewis (FRIBA) and has five children. After studying at Melbourne University, he went to Malaya, as a mining engineer first and later as an architect; then to Liverpool University, London firms and the GWR, to whom he was chief architect from the end of his war service until nationalization of the railways. From 1948 till 1955 was first professor of architecture, Melbourne University, and in 1952 was British Council lecturer in Greece and Turkey.

Intelligence

The U.S. State Department is organizing a limited competition for the design of a new embassy building, to occupy the complete west side of Grosvenor Square. The eight architects invited to compete are Eero Saarinen, Edward D. Stone, William Wurster, Hugh Stubbins, J. L. Sert, Ernest J. Kump, Minoru Yamasaki and Anderson & Beckwith.

The Council of CIAM recently sent to Mme. Jeanneret, the mother of Le Corbusier, a telegram congratulating her on her 95th birthday.

The newly-formed William Morris Society held its first meeting during November last. Its address is The Red House, Red House Lane, Bexley, Kent.

ACKNOWLEDGMENTS

The colour blocks on pages 92 ff. were made available by courtesy of W. & J. Leigh Ltd., Leeds Fireclay Co., and Semastic Ltd.

COVER, top, P. Boucas; bottom, Fox. MARGINALIA, pages 81–2: Gardona Bridge, Manarin; Signs, M.M.A.; 'House in the Air,' W. Sievers; Prof. Lewis, Canada Pictures. WAREHOUSE AT WITHAM, pages 89–98: Galwey, Arphot. CANBERRA UNIVERSITY, pages 104–9: Ritter-Jeppesen. MOTELS, page 113: 4, C. R. Pearson; 5, J. W. Molitor; 6, Stuart Lynn; page 114: 8, 9, J. Shulman; 10, D. G. Mears; 11, Bishop and Scott; 12, Sport and General; 13, J. Chandler. CURRENT ARCHITECTURE, pages 117–120: Grays Technical College, Essex Education Committee; Haileybury Club, Galwey. ADAM & MYLNE, pages 121–3: 2, 3, 4, 6, 10, 11, 14, 15, C. Westwood; 7, Nairn, Arphot; 8, 9, C. Gotch. MISCELLANY, pages 124–132: Farmacia, P. Boucas; Exhibitions, 1, Photo Studios; 2, A. Carlebach. SKILL, Interiors, pages 133–140: 1, 34, Bedford Lemere; 3, 8–11, 13, 16, 17, 21, 25, 26, 31, 32, 35–37, 40, 42, Stewart Bale; 5, H. Felton; 6, Elsam, Mann and Cooper; 7, 27, Metvan; 15, 44, Galwey; 18, 24, 38, Binelli; 19, 28, 33, Photowork; 20, McCallum, Arphot; 23, London News; 43, B. Stefani. Design Review, pages 141–2: 6, Sundahl; rest, Toomey, Arphot.

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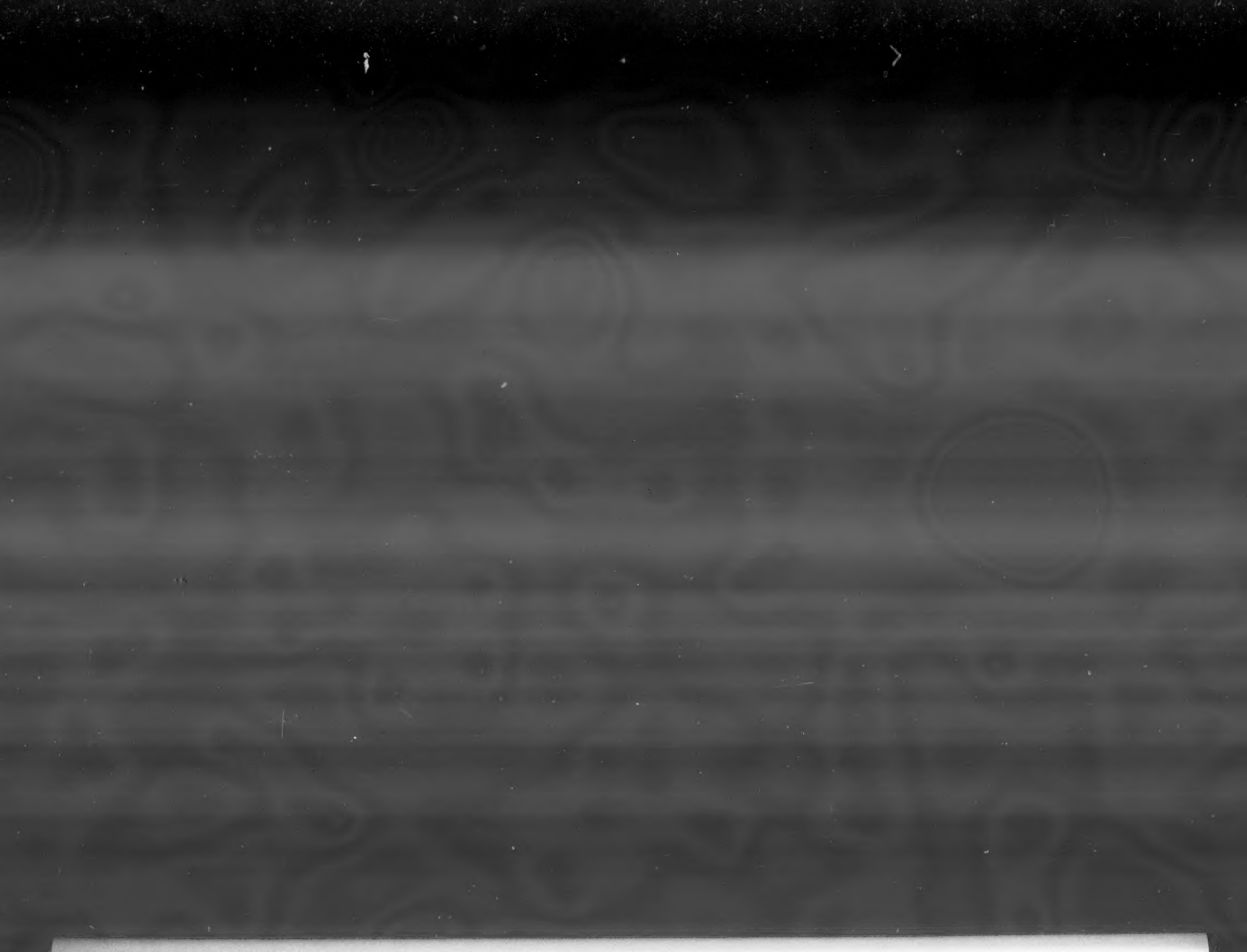

THE ARCHITECTURAL REVIEW

Volume 119 Number 710 February 1956

This month's cover brings together two subjects from articles in this issue, in both of which accidents play an important aesthetic role, and compares them with a pure accident without aesthetic intentions. Yet what makes this last, a casual ranking of Guardsmen's accoutrements, so striking is the unexpected order it reveals, the repeated yet variable constant of one helmet and two gloves. Similarly in the Farmacia della Scala, p. 124, and in Japanese Gardening, p. 128, apparent accidents, aesthetically of prime importance, are always the products of another, deliberate, yet concealed order of placing objects in relation to one another, but this time an order which is within the designer's control.

81 **Marginalia**

82 **Correspondence**

84 **Frontispiece**

85 **The Functional Neurosis** *by Robin Boyd* Design-for-function is an ethic and a technique, but not an end in itself, and the pioneers of the early years of the century may be blamed for not having made the true goals of architecture clear enough. As a result of their delinquency we have now come to identify the functional method with the glass cube, and to accept only one kind of atmosphere or character in a building as truly functional. 'Light, clean, fresh, simple,' says Mr. Boyd, 'has become the deadly constant of architecture,' and though this is not necessarily the requisite atmosphere for every type of building, we cannot conceive of alternative solutions that do not involve the abandonment of Functionalism. Hence the neurosis. Functionalism misunderstood has imposed 'a sort of Hays Office emotional standard' and our buildings lack the confidence to be ugly if their purpose is ugly, or, in general, to have a character proper to themselves. Faced with the ensuing monotony and poverty of invention we are tempted to abandon a principle which has been called Nature's own design, instead of scrutinizing ourselves and seeing that the blame lies in the low quality and lack of variety in our architectural ideas. For the essence of character in building is the germinating idea, and the question of functionalism should not enter in until after the idea has been formed.

89 **Seed Warehouse at Witham:** *Architects, Chamberlin, Powell and Bon*

99 **Inside the U.S. Office** *contributed by Martin Pilch, John Penn, Paffard Keatinge Clay and R. Desmond Henly* The world is generally aware that the organization and methods of architects' offices in USA differ in a stimulating way from those in other countries, but it is less generally aware that there are equally stimulating differences in size and method between American offices themselves. To point up and give full value to these alternative American approaches, we publish a symposium of experiences in the offices of Richard Neutra, Victor Gruen, Abraham Geller, and Skidmore, Owings and Merrill, by three young British architects, prefaced with an essay, by another who has recently returned, which sets out the relationship of the American office to the present state of American building.

104 **University at Canberra:** *Architect, Brian Lewis*

110 **Motels** *by Diana Rowntree* Motels, the characteristic building-type of a community on wheels, are a relatively new addition to the English landscape, for the travelling motorist has hitherto been catered for by the existing grid of coaching inns regularly spaced across the country. But the coaching inn is adapted to a social (and sociable) structure which is no longer current in the impersonal democracy of the wheel, in which the touring motorist's closest tie is to his car, and not to the rest of the transient community with whom he spends the night. This factor alone at once differentiates the motel from other types of roadside accommodation, but in order to attract (and hold) the type of clientele for which it is designed it must differentiate itself by conspicuous visual means as well—a consideration which could (and occasionally does) lead to the use of a contemporary architectural style, but also might lead (and equally does) to the employment of routine subtopian publicity techniques, and their concomitant squalor. On balance, and in spite of commercially successful use of the architectural alternative, the chances are weighted for the subtopian solution, and Mrs. Rowntree's article considers, among other things, what must be done, here and now, about this potential menace while it is still young.

117 **Current Architecture**

121 **Mylne and Adam** *by Christopher Gotch* Though it is customary to compare and contrast Robert Adam and Sir William Chambers in discussions of the Neo-Classic phase of English Eighteenth-Century architecture, the architect with whom Robert Adam is most closely comparable, in date, career, interests and style, is his fellow-Scot, Robert Mylne. Mr. Gotch makes precisely this comparison, showing those points where Mylne reveals himself as a more painstaking and adventurous student, as a more advanced pioneer of Etruscan ornament and a bolder user of space, as a better engineer, as more generally regarded as the head of his profession in the later years of the century. Particularly in the early 1760's Adam and Mylne appear to have run neck and neck in the introduction of the new style of interiors to which Adam, and not Mylne, was eventually to give his name. Nevertheless the case for Mylne is a strong one and, if accepted, must alter the conventional picture of English Neo-Classicism.

Miscellany

124 **Popular Art**

126 **Townscape**

127 **Exhibitions**

128 **Landscape**

131 **Books**

Skill

133 **Ship Interiors** *by Ian McCallum* Though there is a firm-based and time-honoured tradition of nautical design, the interiors of passenger ships—and trans-atlantic liners in particular—all seem to have rejected it in favour of a Grand Hotel style. The style comes in national variants of which the Italian and Scandinavian ones come nearest to good contemporary design, while the British—with a handful of notable exceptions—is as far from the work of good contemporary British designers as it could possibly be. There may be comprehensible reasons for this vulgarity and fake-antiquity, but in the present state of the transatlantic trade they are becoming rapidly less compelling, and the time has clearly come for a re-thinking of the ship interior problem by British lines as radical as that which has produced the new, designer-decorated interiors of post-war American liners. As Mr. McCallum shows in his detailed examinations of specific problems around the ship, the unreformed Grand Hotel style often makes awkward spaces more awkward, restricted cabins less spacious, makes quite large spaces physically and psychologically uncomfortable and even calls for quite unjustified structural modifications.

141 **Design Review**

142 **Techniques: Precast Prestressed Floors** *by Robert Maguire*

148 **The Industry 150 Contractors, etc.**

Author: *Diana Rowntree.* Educated Somerville and AA School of Architecture, qualifying 1939. Married Kenneth Rowntree 1939, lived in Essex, 1941-9, with their two children. Found this a whole-time job, except for converting a Scarborough mansion of the early modern movement into flats. Moved to Putney Embankment, and started to write in spare time: in 1954 took on Design Review.

Directing Editors: J. M. Richards, Nikolaus Pevsner, H. de C. Hastings

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THE ARCHITECTURAL REVIEW

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FIVE SHILLINGS

The use of standard elements in building produces both the most seemly, and most squalid, of contemporary architecture. Economic considerations make standardized, dry-built walling units almost inevitable, yet we frequently fail to make virtues of these constructional necessities—all too often the architect's response is abdication or affectation. Yet the new Spares Warehouse at Aveley, Essex, designed by E. R. Collister and Partners in the closest collaboration with their clients, the Ford Motor Company, shows precisely the kind of intelligent yet unaffected use to which such units can be put. The diagrammatic breakdown, opposite *by B. Schwarz, shows at the right a detail of the temporary, recoverable rear wall of glass and metal panelling, and at the left the elements of the glazed curtain walling whose repeated units give a comprehensible rhythm to the five-hundred-foot length of the office-block façade. The design will be fully published in the April issue.*

Robin Boyd

THE FUNCTIONAL NEUROSIS

When modern architecture is not lounging complacently in the coloured magazines or chewing over the discoveries of its pioneers, when it is obliged to state its beliefs, or face up to a psychological problem, or look to its future, then the neurosis is most evident. Modern architecture is torn by remorse and doubt because it is still wavering on the point of renouncing functionalism, and yet has no other conviction to replace this god of its youth. Whenever it is tempted to build from the heart, and not from the head, it has the uneasy feeling that it is somehow letting the old side down. The single-minded revolutionary zeal of the early years has been replaced by nothing but a half-smug and half-dispirited slackening of the discipline. Sometimes deliberate reactions against simplicity and directness are tolerated, mostly on the pretext of reviving 'human' quality in response to calls which frequently sound more like advertisements for soft drinks than architectural criticism.

The delinquency and the neurosis of the day are not entirely due to a weakness in the present generation. The pioneers of the early years of the century may also be blamed for not having made the nature of the goal clear enough. Too often design-for-function was presented as a character, a quality of building, an end in itself; and it is of course none of these. It is an ethic and a technique, not some sort of mood or atmosphere; not something to be set up in opposition to the genre of humanism; never a substitute for creative architectural thought. It is the mould in which architecture is cast, not an ingredient.

As a technique and a philosophical basis for design, functionalism still holds the promise to direct and unite all the useful arts. The tragedy is that it is dying while still young and inexperienced. It is being discarded while virtually only one application of its principle has been investigated conscientiously, and even this one application is still so

unfamiliar in the streets of most countries that the layman has not had sufficient opportunity to evaluate it. Functionalism is being renounced because the first attempts to apply the principles of the functional ethic always tended in the same direction, and we are tiring of this direction. But its philosophical basis, glowing with the eternal validity of nature's own design, is bigger than any one of its possible human applications. One application suggested itself to men who were revolting against the aimless anarchy of nineteenth century eclectic exhibitionism. They saw a line of development which started with a white cube of concrete and appeared to lead ultimately to a cube of glass. This line has now been traversed assiduously, and some men, finding the end result lacking in certain qualities, and considering that all possibilities have been investigated along the line, are now all for throwing out the principles of functionalism along with the glass cube. The unforgivable oversight of Mies van der Rohe was that he did not build the Farnsworth house thirty years earlier, and so speed the investigation of the line to its conclusion. The Farnsworth house closed all investigation. It was the ultimate glass cage, made so superbly as to be a final word on the subject. Whatever esoteric pleasures may be savoured in future play with structure or proportion in variation of the theme, no one can expect the line to hold further undiscovered mysteries of any significance.

If this present stage had been reached earlier, while the functionalist principles were still fresh, more attention might have been concentrated on achieving equal purity of conception in terms not necessarily limited to rectangles and continuous glass, in terms which might give always increasing consideration to the demands of living and environment—a more subjective, constructive simplicity for every purpose; not merely the plainness that results from the avid practice of elimination.

The basis of our present uncertainty is the fundamental error in identifying the functional method with the glass cube, and in contrasting it with the cosy cottage. The neurosis develops as we try to reconcile the familiar, austere version of functionalism with architectural expressions of greater emotional appeal. The principles of design-for-use still seem like a moral anchor stabilizing design; but now the more intellectual and sensual delights of architecture beckon us again. Should we, then, cut loose from the anchor, or continue to repress our desire for more excitement? But if this is the conflict within us it is quite unreal. For there is no need to cut the functional anchor while we explore architecture further.

Notwithstanding the confusion we are in, it is still just possible to imagine a building which could be discussed with unanimous admiration by a Wright, a Corbusier, and a Casson. No matter what shapes we build, all of us are likely to agree that one quality, if present in sufficient strength, will determine architectural merit and override such considerations as whether, in the historian's eye, the style is Cottage, International, or Baroque. The building of universal admiration would have some seemingly original and clearly valid idea permeating every part of it, unifying it with a nameless character. When present in other arts, this quality is generally recognized and acknowledged, and no one seems to find it necessary to attempt to name and define it. The work may be fitted into a generic style group, but it will be permitted its individuality of character. In our matter-of-fact architectural way, however, we like to get all the details settled in black and white; we like to tie art down to a contract specification; we still like to see all buildings in neatly labelled pigeon-holes, for we are still tied to stylism, despite all our protestations. We are at home with style, and fidgety when confronted with character.

If it seems necessary today to renounce anything, we should be concentrating on ridding the movement of the identification of functionalism with the narrow range of expression so far accomplished in its name. 'Light, clean, fresh, simple'—this has become the almost universal, steadfast, emotional expression, the deadly constant of architecture. Even the more experienced critics often strike heavy weather trying to distinguish in general terms between new buildings, simply because so often there is so little difference between their architectural characters.

Perhaps the most humiliating thing is that we still use solemnly in description the word 'beautiful', which long ago was withered by parody from the vocabulary of painting. Passive acceptance of the implications of indeterminate terms of praise such as this puts architecture in the intellectual company of the interior decoration magazines or Hollywood, where aesthetic right and wrong are defined and the prime achievement is the ability to work in the established idiom in such a way as to lull the observer to sleep. The quality most conspicuously lacking from international modern architecture is not beauty, but reality. Our buildings lack the confidence to be themselves, the strength and honesty to be what the situation makes them—ugly, if necessary, if the purpose is ugly. Architecture has accepted a sort of Hays Office emotional standard, a sophisticated but essentially chocolate-box ideal of prettiness, a timorous, sedate desire for conformity of the soul of the building. Even while the architect is planning a novel shape, or devising a new tensile structure, we can be pretty certain what the final quality will be—light, clean, simple; with an atmosphere fresh, open, uncluttered. And while this is a charming and delightful character for numerous occasions, a world of it—which is presumably the present ideal—suggests a decline which would carry architecture eventually to unplumbed depths of ennui.

The process which began with the elimination of ornament, and pressed on rapidly to the elimination of visually complicated details of construction, has passed to the stage where the elimination of architecture is in sight. Disturbed by this, many architects during the past decade have turned their backs on the goal which once seemed so desirable. No longer do they insist on a physical justification for everything. The thought grows, 'We have passed the stage of functionalism', and now perhaps we need not be so strictly simple, so grimly opposed to ornament. We can look for new devices to divert architecture from the decline. We may allow ourselves to interfere with a shape dictated by use or structure. We may return to pleasant diversions such as the play with arbitrary proportions of each flat plane.

Where will it all lead? Back to the plaster jungle of sentiment, unless we revise our attitude to architectural character; unless we reject the notion that functionalism represents one stock atmospheric type in building; unless we break our habit of confusing technique with character, and identifying certain characters with different regions and different architects. Functionalism is indeed doomed if it is taken as a substitute for an architect; if one believes that it can provide with mathematical precision the idea behind the building. It cannot present any idea. There is no substitute for creative thought. But functionalism, in ever stricter interpretation, with ever firmer denunciation of applied aids, can and must provide the discipline under which the architect's idea is worked out to its conclusion in terms of building materials.

We must be strict. A liberal interpretation of the meaning of functionalism destroys the concept altogether. It has never been unusual for an architect to imagine that he is

serving purpose with the greatest possible economy. Only the purpose has varied from age to age. Early this century the definition of a building's function was finally narrowed down to the purely physical requirements of the occupants, and a new discipline tightened about this wonderfully solid, universal standard. But in our present state of vacillation, in our anxiety to explain away deviations from the cube, we are stretching the definition again. We allow that a building may serve what we call 'psychological functions', but we might as well talk of 'symbolic functions' or 'romantic functions', or 'advertising functions'.

Dissatisfied with the current monotony of architecture, with 'inhuman' mechanical cages, disappointed to find so few monumental qualities, so few symbols, such numb response to any call to the spirit, we question the principle which once promised to remake the world of design. We do not dream of searching in ourselves to find why our ideas are so thin that they have let down the principle. But the fundamental weakness of the moment is here: in the low quality and lack of variety of architectural ideas. Yet a peculiarity of architecture, apart from other arts, is the scope it allows for the intrinsic theme, the operative idea. Each new building may have a theme derived from any of several different stimuli. It may be basically sculptural, as in the cathedrals or Le Corbusier, but it may be a geometrical idea, growing from any symmetrical or formal pattern; or an emotional idea, as in an introverted Wright house; or an intellectual idea of structural perfection, as in the best of Mies van der Rohe; or a mathematical constructional idea, such as a despotic module, or one of Paul Rudolf's demanding roofs; or a spatial idea; or a combination of several of these and other kinds as well. But not an idea of function. That is the mistake we make so often. The use of the building rules the entire development of the design, but it has never supplied a stimulus to fine architecture.

The basis of the original idea, however, is not of great moment. What matters is the strength of the idea, and how it is developed. What matters to the spirit of functionalism is whether the requirements of purpose are misinterpreted or distorted, or are in any way not suitably served by the idea when developed without stress or embellishment. What matters to the spirit of organic creation is whether or not the result is at ease within the laws of nature, of structure, of materials. What matters in terms of art is whether the idea is developed consistently enough to permeate the entire work. And what matters to the spirit of architecture is the extent to which the development of the idea exploits the qualities of space and enclosure.

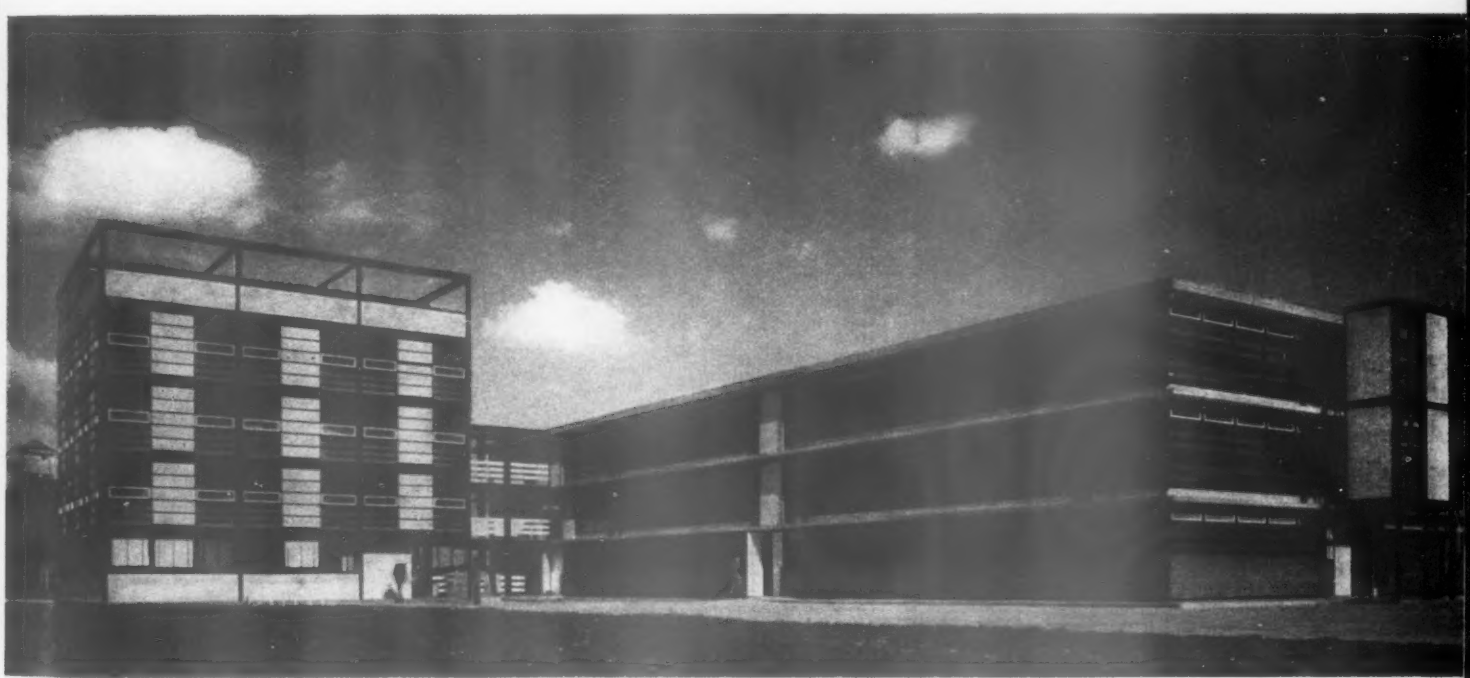
These, however, are merely rules of technique and style—not of character, which cannot recognize rules or limitations. The essence of character is in the originating idea. If our buildings are monotonous, it is because our ideas are generally confined within a narrow range. Structure is approved as a stimulus by our unwritten architectural morality code rules; ideas based on shell-concrete or exposed steel cantilevers are always well accepted, but ideas based simply on the enjoyment of living, or springing from a sense of humour, or gaiety, or reverence, or mystery, or awe, are suspect, because we cannot bind them into a specification. They worry us; we wonder if they can be functional. Yet the question of functionalism should not enter until after the idea is formed. Then it will never let down the idea. It is never to be questioned; only our own lack of ideas is responsible for the coldness, the monotony of atmosphere, the constancy of mood, the limited range of expression in modern architecture.

SEED WAREHOUSE AT WITHAM

ARCHITECTS | **CHAMBERLIN, POWELL & BON**

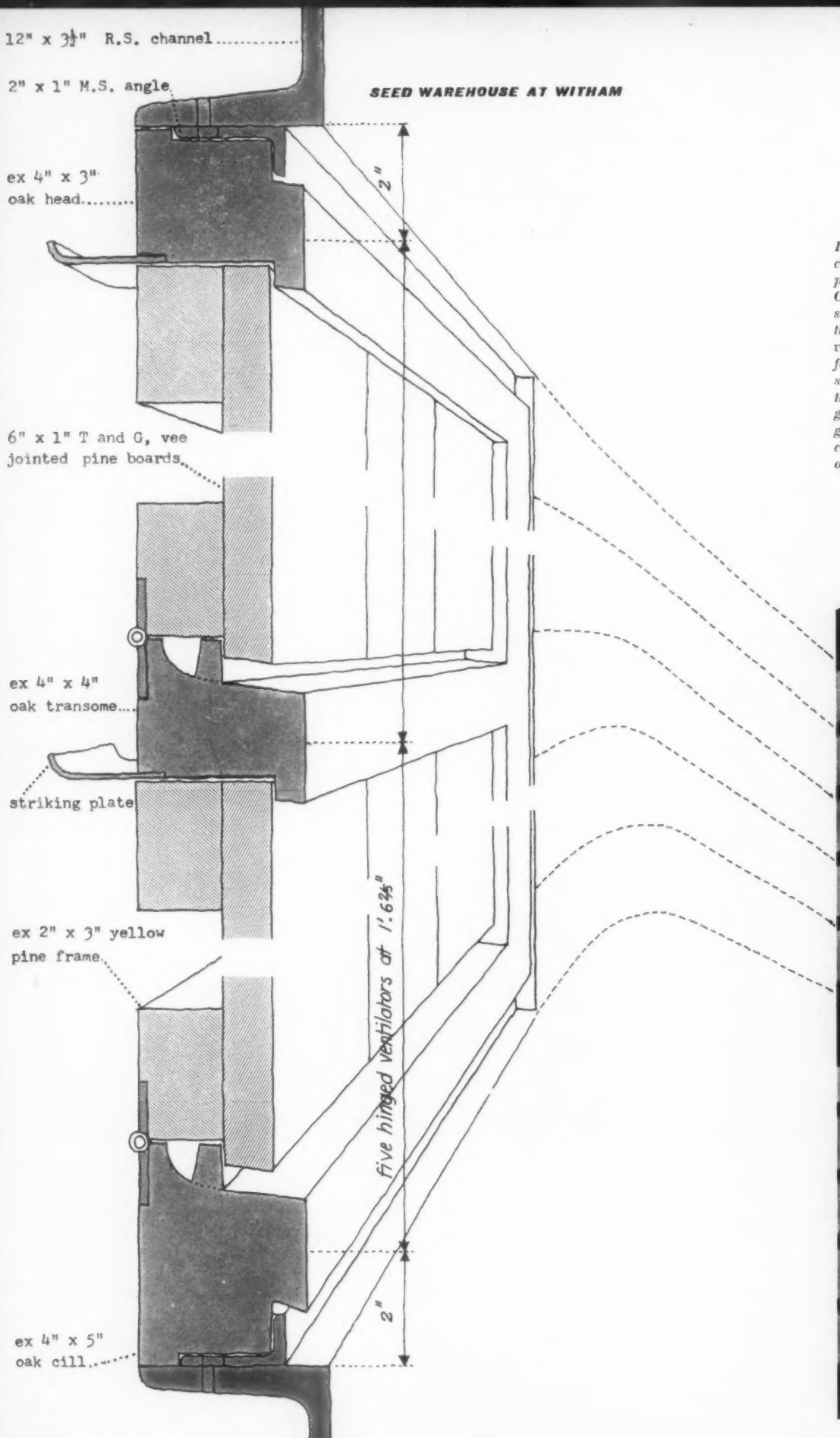
assistant architect | **J. R. Holroyd**

1, south view of, left, the processing building and, right, the warehouse. Loading bay is between the two.

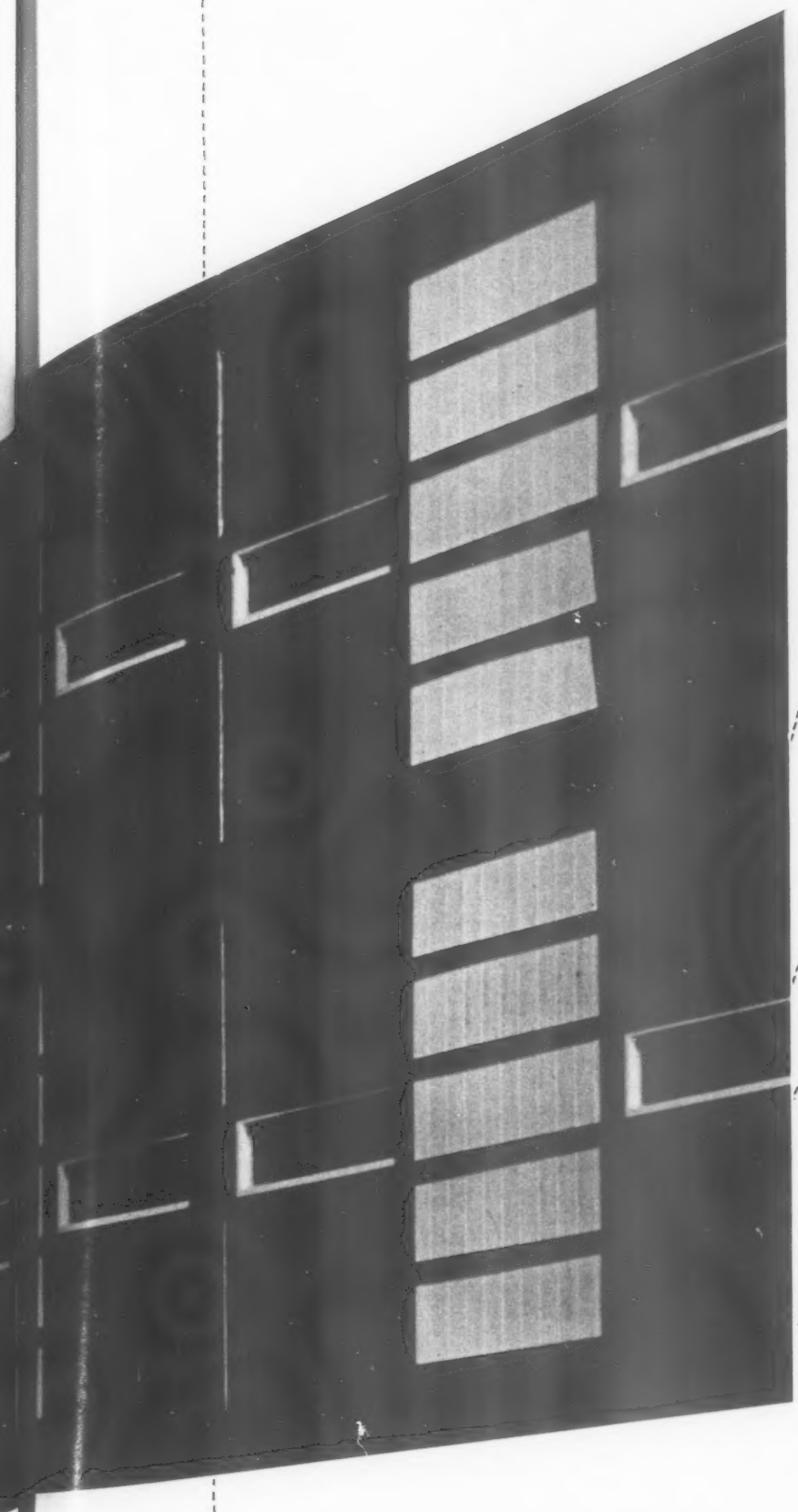


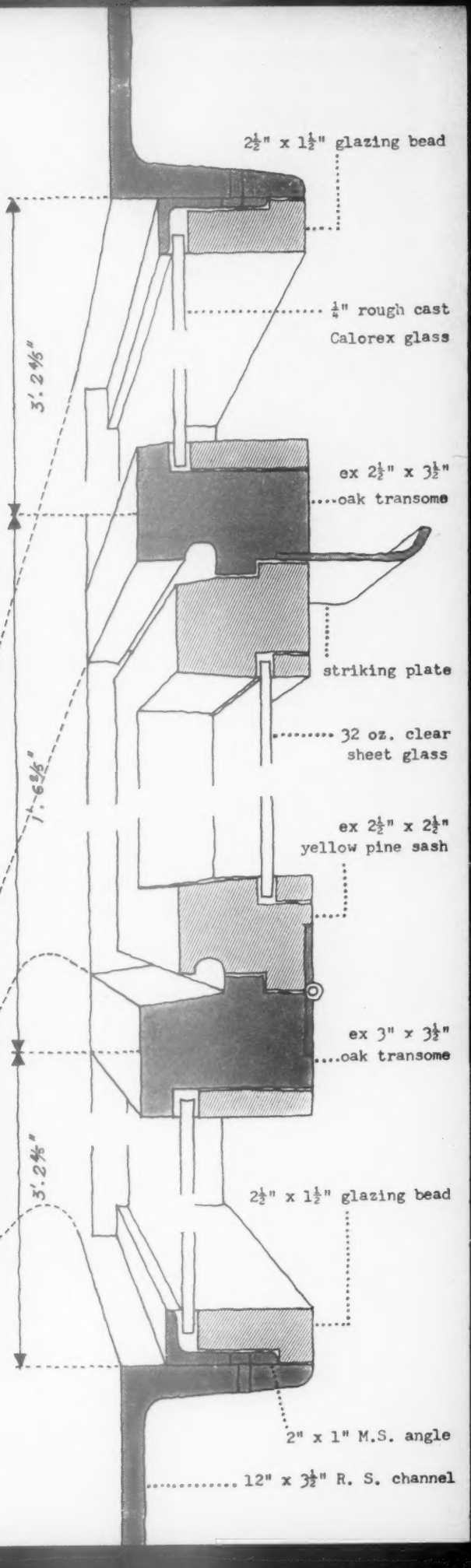
These buildings were required by a firm of wholesale seed merchants at Witham, Essex, to replace their former premises which had been destroyed by fire. It was decided that they should be erected on an open, level site which was part of the Company's seed-testing grounds. A total floor area of about 30,000 square feet was needed to serve as a warehouse, to house the processing machinery, and to provide accommodation for a seed-testing laboratory, a small retail shop, offices, a staff lunch-room, lavatories, etc.; the possibility of future expansion had also to be allowed for. Owing to the limitations of the local water supply, a 100,000-gallon static water tank was built for emergency ; it serves also to emphasize the height of the processing building in contrast to the warehouse, which is long and low.

When seed arrives from the growers it usually needs to be both dried and cleaned before it can be put into store where it may remain for a long or short period. The different functions of processing and storing suggested a warehouse for storage purposes only and a separate processing building to contain the drying plant, the cleaning machines and the other small elements

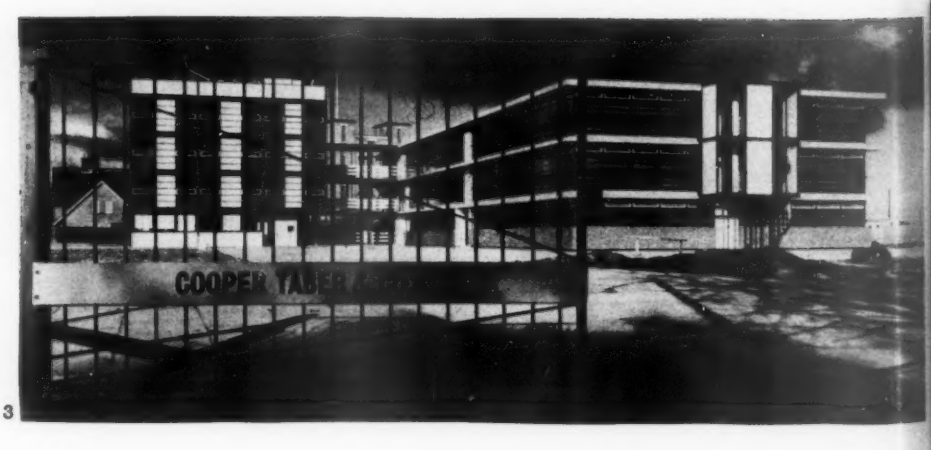

12" x 3½" R.S. channel
2" x 1" M.S. angle
ex 4" x 3" oak head
6" x 1" T and G, vee jointed pine boards
ex 4" x 4" oak transome
striking plate
ex 2" x 3" yellow pine frame
ex 4" x 5" oak cill
2"
five hinged ventilators at 1'-6¾"
2"

Details of the cladding of the processing block. On this page, section through the vertical ventilators; on facing page, section through the fixed blue-green rough cast glazing and clear-glazed opening sashes.




2½" x 1½" glazing bead
¼" rough cast
Calorex glass
3'. 2⅛"
ex 2½" x 3½"
oak transome
striking plate
32 oz. clear
sheet glass
1'. 6⅛"
ex 2½" x 2½"
yellow pine sash
ex 3" x 3½"
oak transome
3'. 2⅛"
2½" x 1½" glazing bead
2" x 1" M.S. angle
12" x 3½" R. S. channel

2



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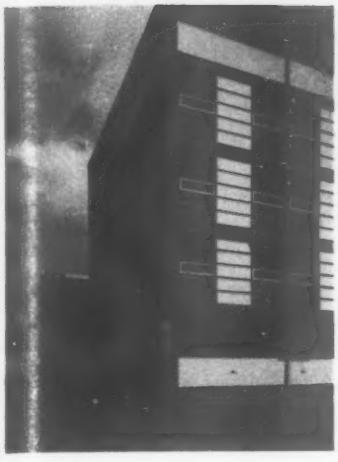


4

Facing page, 2, processing building from the south-west; seen across the static water tank; 3, general view from south of site. 4, view east, looking past processing to north end of warehouse. 5, south-east corner of processing building; brick panels of east wall are to prevent fire spreading to warehouse opposite. 6, processing seen from warehouse; linking bridge and loading bay are between blocks.

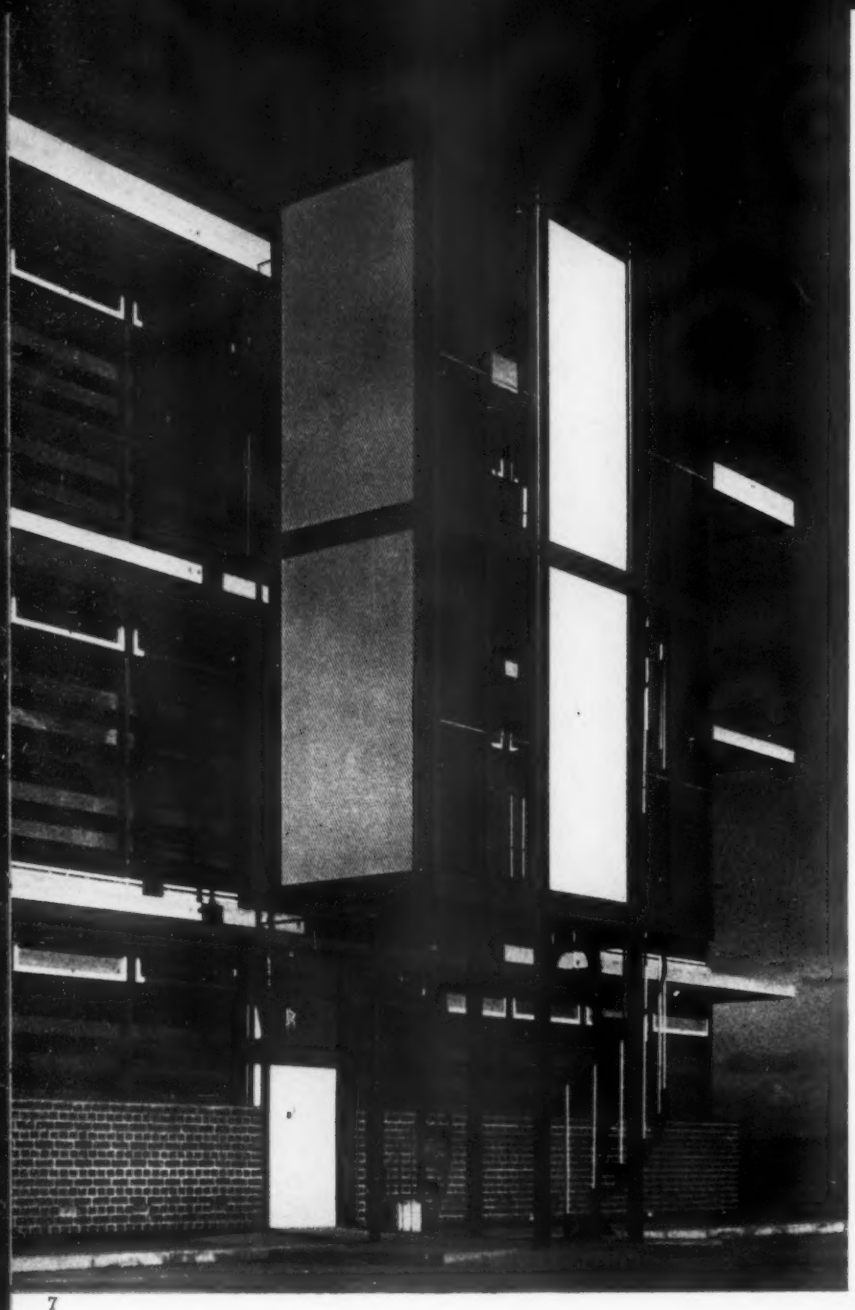
SEED WAREHOUSE AT WITHAM

5

6

required. The two buildings are linked by a bridge. Both are planned on a 5 foot grid. The difference in constructional method, steel frame in the processing building and concrete in the warehouse, was dictated by the need for multiple vertical communication in the first and fire prevention in the second.

The warehouse is a rectangular three-storey building, 145 feet by 55 feet on plan, and 27 feet high. Penetration of the floor slabs is limited to two small nine-inch-diameter chutes in the first and second floors, introduced to facilitate the mixing and bagging of seed. All vertical circulation, by stair, lift or hoist, is outside the building, to reduce the risk of fire spreading from one floor to another. As the building consists of three unbroken reinforced concrete slabs (first floor, second floor and

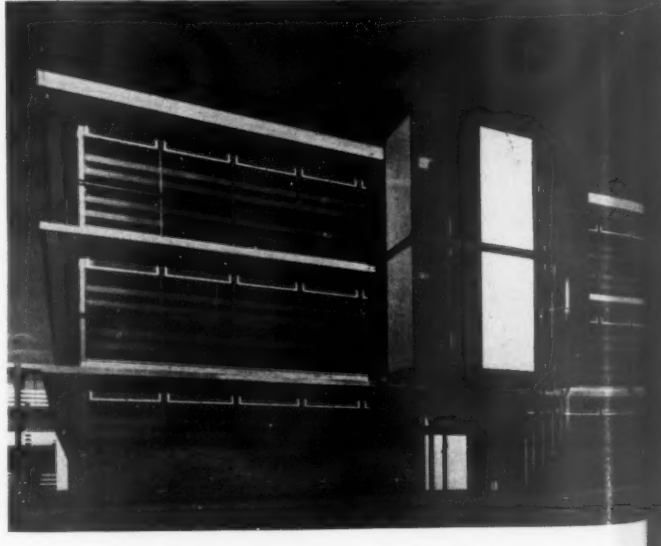


7

SEED WAREHOUSE AT WITHAM

7 and 8, south end of warehouse, showing floor slabs cantilevered out all round to prevent possible spread of fire; a spiral stair and a hoist are enclosed in the projecting unit.

roof) supported on mushroom-headed reinforced concrete columns, it was extremely simple and economic to build : the cantilevered floor slabs extend beyond the screen walls to prevent, again, the possibility of fire spreading. Sacks of seed are stored on top of each other to a height of about 6 feet so that it was not necessary for the ceiling height to exceed about 8 feet. The warehouse had to be well ventilated. Because of the low ceiling the screen walls are largely of glass to allow maximum light penetration, and clear-glazed centrally-pivoted sashes are placed all round each floor of the building immediately under the projecting soffits thus allowing complete cross-ventilation. The glazing is fixed with beads against the outer flange of mullions formed of light steel joists ; to the inner flange is fixed a fence of boards against which the sacks can be stacked. To keep the interior cool in hot weather, a blue-green roughcast glass has been employed for all fixed lights, this allows



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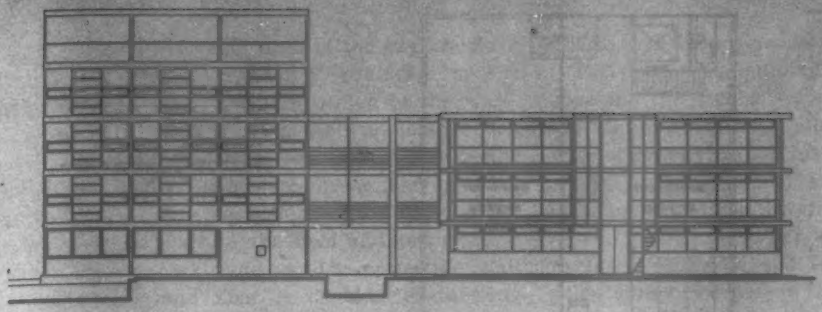
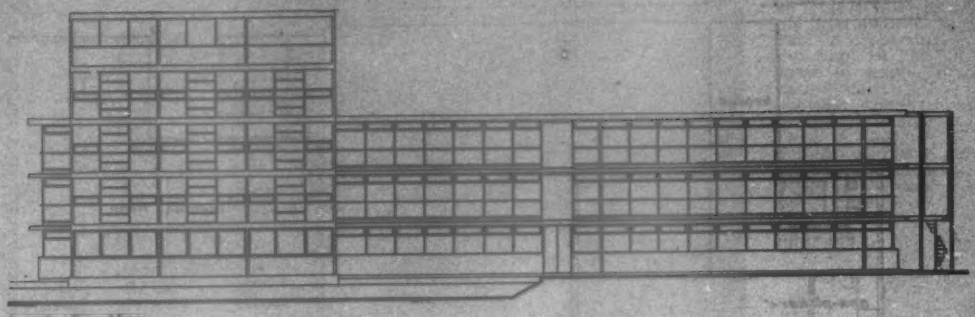
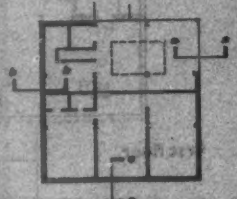


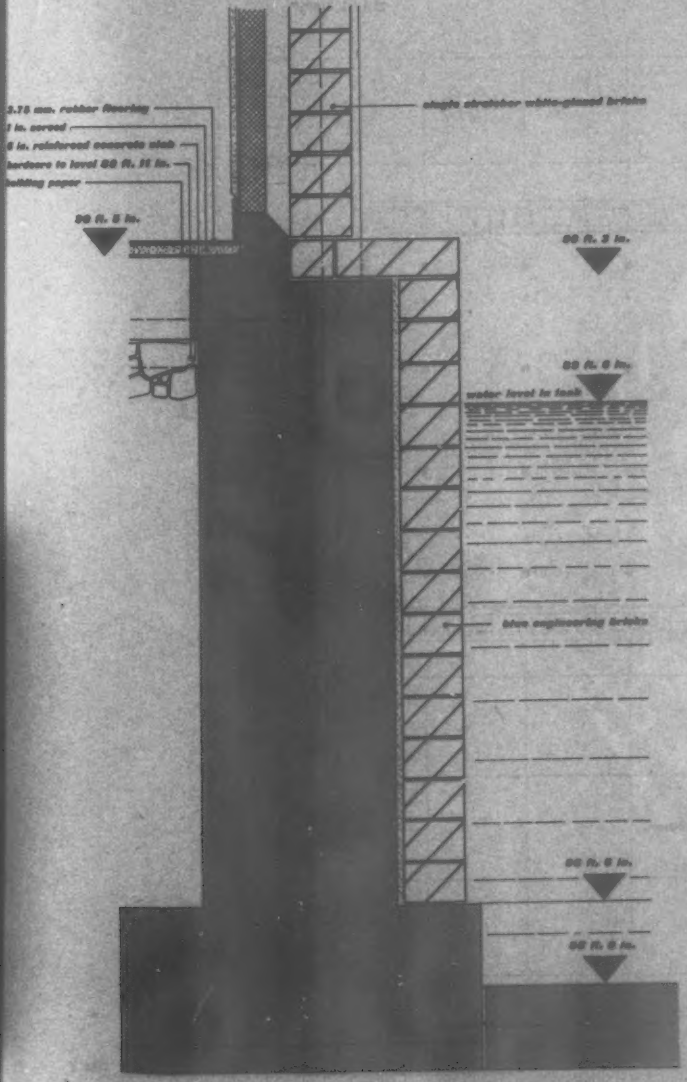
south elevation



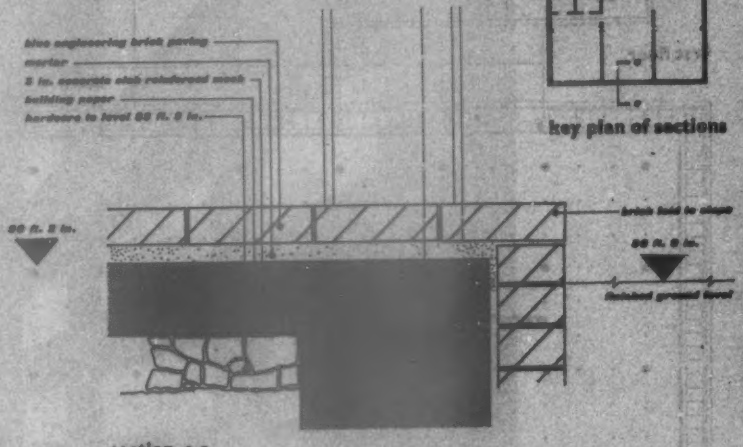
west elevation



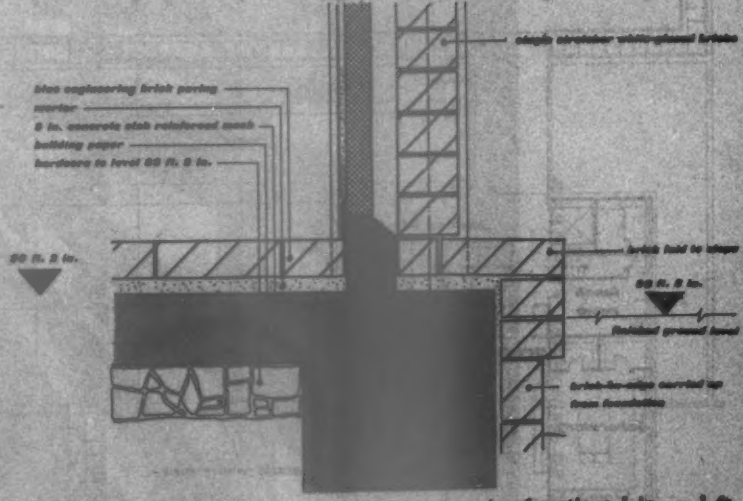
key plan of sections


3.75 mm. rubber flooring
2 in. screed
6 in. reinforced concrete slab
hardcore to level 88 ft. 11 in.
building paper
88 ft. 2 in.
single skratcher white-glazed bricks
88 ft. 3 in.
88 ft. 0 in.
water level in tank
blue engineering bricks
88 ft. 0 in.
88 ft. 2 in.

section c-c

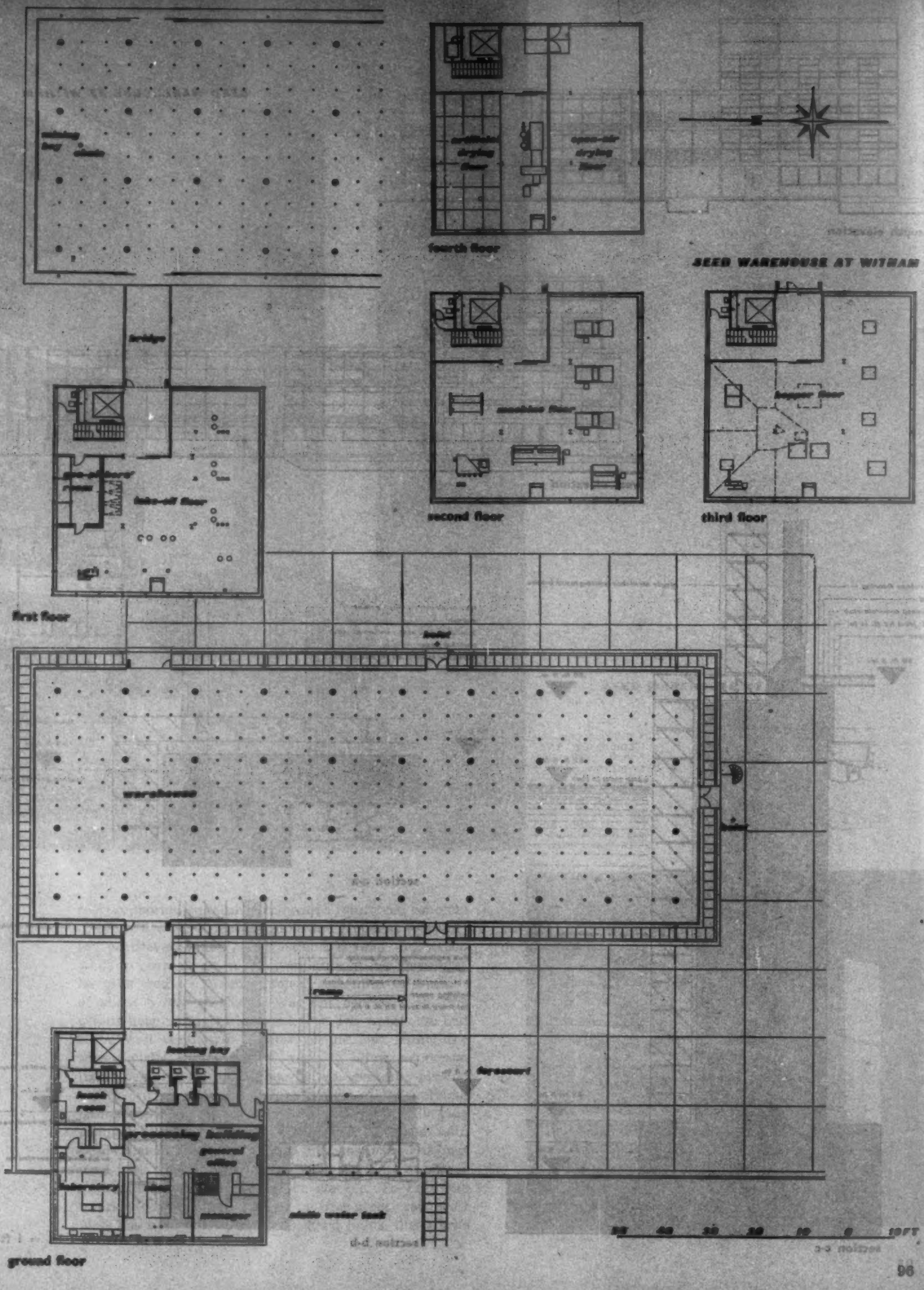


section a-a



section b-b

scale of sections 1 in. = 1 ft.



SEED WAREHOUSE AT WITHAM

ample light while warding off most of the sun's heat. In addition to the vertical circulation provided in the processing building and linked by bridge to the warehouse, an enclosed hoist and spiral stair is placed at the south end and an exposed hoist on the east side of the warehouse, for direct loading to or unloading from lorries. The fair-face concrete soffits and the doors in the warehouse are painted white, the steel mullions crimson and sundry details dark blue. A low protective wall surrounding the ground floor is of blue engineering bricks. The roof is covered with asphalt on insulation board, and floors finished with an asphalt compound.

The processing building is five storeys high. Broadly speaking the seed is raised mechanically to the top of the building and then allowed to fall, under the influence of gravity, to the first floor, being processed on the way. The testing laboratory, offices, small retail shop, staff luncheon-room, lavatories and a loading bay are all on the ground floor. The staircase and lift-well are in a fireproof enclosure and the frame on the east side is filled with brick panels to prevent the risk of a fire in either building spreading to the other. Otherwise the

9

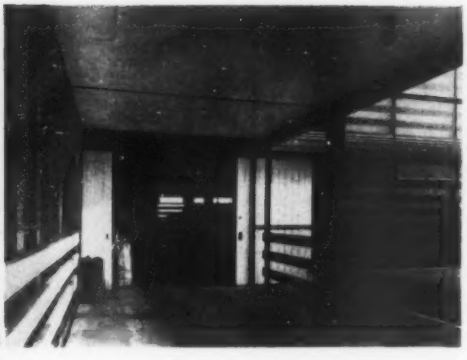
9, typical interior of intermediate floor in processing building; 10, the same in warehouse, each showing the fences of boards fixed to the flanges of the mullions, against which sacks can be stacked.

10

11

SEED WAREHOUSE AT WITHAM

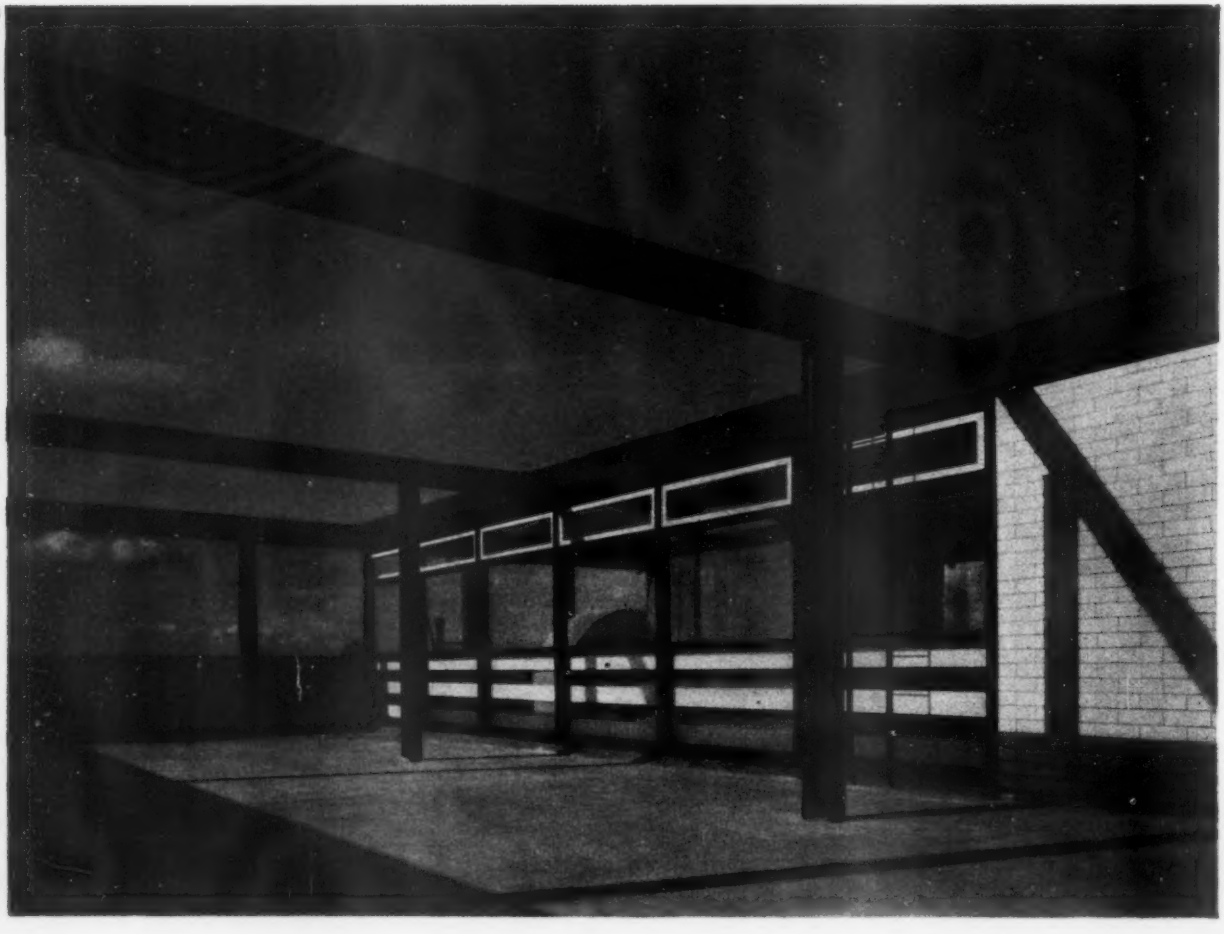
11, the covered and, 13, the uncovered parts of the drying room at the top of the processing building. 12, the bridge linking the two blocks.



12

exposed steel frame is largely glazed externally except for the hopper-type ventilators which are of timber and the brick spandrel panels at ground-floor and roof level. Above the level of the blue brick plinth, all brickwork, internal and external, is of white-glazed bricks requiring no maintenance. The stanchions and beams of the structural steel frame are fully exposed and painted crimson. Before painting, all external steelwork was shot-blasted and treated with a zinc deposit, against rust. Floors are finished with softwood boards above ground level. The floors in the laboratory, retail shop, and office on the ground-floor level are finished with grey and white rubber floor tiles.

13



INSIDE THE U.S. OFFICE

Architectural office organization in the USA has become an almost legendary subject for non-Americans, who tend to envisage hundreds of assistants working in factory-sized offices without windows. The facts of the matter, however, are that a building industry so vast and complicated, and a body of clients as varied as a half-continent can produce, together offer unique opportunities for specialization and for pioneer enterprise, for the small office or the large, for group-work or for hierarchy. To give some idea of the wide variety of American office practice, we present below a symposium of experiences by British architects who have worked in several contrasting American organizations, prefaced by a general survey of the American architect's relationship to American building business by *Martin Pilch* (Dundee trained) who has recently returned from a two year study tour as MacLaren Travelling Student of the RIAS.

1

The profession of Architecture in the United States is organized through the American Institute of Architects. Each member of the Institute is also a member of its constituent organizations, numbering over ninety, and known as Chapter and State organizations. As in the political sphere, where the States are very jealous of their rights versus the Federal Government, so in the sphere of architecture the local bodies are jealous of their independence and, consequently, the AIA is more of an advisory body than a regulating authority.

education

Architects in the United States get their professional training very largely at the universities, and both the length of their training and programme vary with each institution. In general two years of an Arts Degree course is a prerequisite for the student's admission to the School of Architecture within the university. On an average it takes a further three years in the School of Architecture to complete the degree of Bachelor of Architecture, which admits the holder to the profession. By studying for a further two years the student may get the degree of Master of Architecture, and then proceed to the degree of Doctor of Philosophy. For a degree in architecture, students attend studio and lecture courses which carry point values depending chiefly on the time required to be spent on the particular course. A degree is granted upon satisfactory completion of courses with point values which add up to a required total. About two-thirds of the subjects are compulsory, and the other third is selected from a list of alternatives. The optional subjects may include drawing, painting, sculpture, planning and housing, or any technical subjects. In this way a student may follow his natural aptitudes and acquire a certain amount of specialized knowledge at college.

registration and licensing

The registration and licensing of architects is carried on at the State level, and belongs to the privileges that the States guard so closely. Whether an architect requires to be registered or licensed depends upon the State law. Generally, where the law prevents the exercise of the functions of architect unless certain standards are complied with, it is a licensing law; where the use of the title of architect is controlled, it is a registration law. The different States have varying requirements for licensing or registration, but in general a candidate is required to pass an examination, which may be equivalent to the RIBA final, as in New York or California, or may be of a lower standard. Usually the candidate must be a graduate from architectural school with three years' experience in an architect's office. If the candidate does not have a degree, most States require about twelve years of practical experience instead, and in this case a High School Diploma is a necessary prerequisite for registration.

The fact that an architect is registered or licensed in one State rarely gives him the privilege of practising in another State. Colorado, for instance, will only permit architects to practise who are natives of the State. Most States, however, will permit any architect to practise who passes their examinations. In the last few years the National Council of Architectural Registration Boards, which was set up by the various State Boards, has assisted architects in inter-state practice by holding examinations for architects registered in States where the requirements are lower, to bring them up to the standard of those States which have higher standards. Architects registered in New York, for instance, will be admitted to practise in other States through the NCARB upon application, while architects qualified in States whose registration or licensing laws are less strict have to pass supplementary examinations.

the architect and the building industry

There is no independent profession of quantity surveyor in the USA, and consequently working drawings and specifications form the basis of the contract documents. In 1926 a group of quantity surveyors established a national organization to standardize procedures and secure the recognition of persons qualified to give this service, but the depression eradicated the independent quantity surveyor, and to-day he is a part of the contractor's organization.

The building industry in America is one of the highest paid industries, and one of the most competitive. It commands the best technical skill available and is very cost-conscious. It has to deal with well-organized labour unions and pays very high wages. Only a well-above-average architectural employee in New York City commands a salary equivalent to that of a bricklayer. The average tradesman is well educated and highly skilled. In many trades entry into the trade is controlled by the State by issuing licences upon examination. Such is the case with plumbers in New York.

Speculation in land in the cities is largely uncontrolled, and land values tend to be very high. City revenues are primarily collected from the taxation of real estate values, and taxes are payable on vacant sites according to their value for development, as well as on occupied sites. All these factors create a very strong emphasis on speed of building. Clients want to occupy or rent their buildings as soon as possible to reduce the period when their capital is tied up without return. In many cases the clients are willing to pay more for the building in order to have it sooner in service. With all these conditions, and the fact that site labour is generally dearer than shop labour, the stress is laid on preplanning, prefabrication, dry construction methods, etc.

Large contractors have a tendency to become brokers, as they may only do one trade themselves and sub-contract all else. They comprise a small, very efficient organization of specialists in planning and organizing building operations.

contracts

The normal practice in large jobs where the clients are private individuals or corporations as contrasted with public bodies, is to employ a contractor almost at the same time as the architect. In fact the client may approach the contractor, and, in consultation with him, appoint the architect, or vice-versa. The contractor then acts as a consultant, and is paid either by a fixed fee, a percentage of the cost of the job upon completion, or in any other mutually agreed way. Sub-contracts are then sent out to tender in the usual way.

In the case of government bodies and local authorities, the standard method of selecting the contractor is by the open tender based upon the working drawings

and specifications. This procedure requires a most complete set of drawings as in any variations the client is at the mercy of the contractor.

The third method in use is a system of several contracts, where the client sends individual tenders to all sub-contractors and pays the general contractor for co-ordination and supervision, or the architect himself acts as co-ordinator for the client and receives additional remuneration.

Supervision of buildings in progress is usually through a clerk of works, who supervises the quality of materials, etc. On large structures the architect may pay visits once a month only, and since the contractor is given complete data he can proceed with the job and only ask for explanation of points which seem doubtful.

consultants

The American client has long ago accepted modern mechanical services, and demands the best in heating, lighting, air-conditioning, lifts, etc. The American architect, therefore, employs consultants early, and much more frequently than is the case in this country—in fact they are employed universally. Certain States will not grant permission to erect any building regardless of size, unless structural and mechanical drawings are accompanied by calculations, and the drawings are stamped by a licensed engineer. Large architectural offices at one time employed their own specialists, but that method is being superseded in favour of outside consultants as this gives the architect freedom to choose the most appropriate firm for the job. The consultants used for an average job are: heating and ventilating; plumbing; electrical; structural. These consultants are usually paid by the architect either by a fixed fee or a mutually agreed percentage of the cost. This service is included in the architect's fee from his client, and the client is only asked to pay separately for special services, if required, i.e., town planning consultants, grading or foundation specialists, etc.

the client

The AIA professional practice code does not permit advertising, but does allow architects to have their names exhibited on a building in course of erection. Architectural jobs are obtained in the usual manner, but greater attention is paid to public relations, particularly by large offices, where lack of continuity of jobs might throw the whole organization out of gear. Public relations are to a large extent helped by the press. The real estate pages of the *New York Times*, for instance, constantly feature new buildings and the names of the architects responsible for them. Some architectural magazines are designed not only to serve the architect but to a large extent the contractor and the layman. The general public is very much more aware of contemporary architecture and the work of individual architects. *Time* and *Life* magazines feature buildings frequently. Modern architecture is not only accepted, but is used as an advertisement to convince the public that a particular firm is very much to the fore because of its use of well-designed buildings and the most up-to-date services. The public has come to associate modern buildings with efficiency. Even banks have discarded their colonnaded solidity for plate-glass transparency. Such changes indicate their awareness of a change of mood in the public. It is conceivable that the New York Stock Exchange will follow suit with a contemporary building in line with its recent decision to sell stocks on the hire-purchase system.

Although established firms are usually paid on the fee-plus-cost basis, firms do accept less according to circumstances.* State and local authorities do not abide by either method, and offer percentage fees which are half or less what the various architectural bodies specify as minimum. Since the States also grant licences or register architects undercutting is no crime.

The architect usually signs a contract with the client in which both fees and services are stated clearly as the courts have been known not to recognize other forms of agreement. Since the client is well aware of the financial loss he faces if he changes his mind during the execution of the job he usually demands and receives much more detailed information than is customary here. After the approval of the preliminary drawings, the clients are sent regular prints of all the drawings produced in the office, and their consent is sought. It is extremely surprising how quickly they grasp the technical aspects of the drawings, and how much comment they do offer—which saves so many tears later.

Architects' fees are usually paid by instalments, as set out in the contract.

office

Housing in America is largely in the hands of speculative builders, some of whom employ architects, but the majority do not. The more expensive type of house is architect-designed, but otherwise architects in America concern themselves with larger structures. Since it usually takes a team of five to ten people to produce a building some offices operate on one job at a time and remain small, while others go up to 600–1,000 employees. Smaller offices may expand rapidly if circumstances warrant it, and a large number of people may be employed for the duration of a particular job in the office. This system is practised by some firms in large cities, but the rates of pay these employees receive is very high and increasingly a larger proportion of architectural firms prefers to keep a smaller but permanent staff. A typical office of this type might comprise 25–50 employees.

Americans are brought up with the idea that increase of efficiency and productivity will result in higher standards of living. This is reflected in architectural offices. Standards of lighting (100 lumens on the board), equipment, and comfort are very high indeed, and result in an excellent standard of draughtsmanship and speed. The working week varies from 35–40 hours with a five-day week. Some States specify paid overtime in excess of 40 hours at higher rates of pay.

Irrespective of the form of contract, contractors demand drawings well in advance of building operations. Constant pressure is put upon the architect to produce drawings quickly. In two years spent in New York City I have never seen a job without a time limit to it.

When a new job comes in, and as soon as approximate estimates can be obtained, the job is priced in terms of its cost to the architect. Architects have figures available indicating how many man-hours it will take to complete a particular job in their office. As soon as the sketch plans are approved the person in charge is given the necessary personnel who will remain with him for the duration of the job, and a date by which all drawings must be finished.

Most offices are in large modern buildings with high rents. This permits the most efficient lay-out and good standards of daylighting. It is usual to have an administrative section, a plan room, a specification room, a conference room, the partners' rooms, and the main office in which all drawing is done. This room is seldom partitioned off, and is well ventilated and quiet. Sometimes designers are separated, but it is usually considered better practice for the designers to be in the same room.

It will be seen from the above that the overheads of an average office are very high, and an architect in America must be an efficient organizer to survive. This is usually achieved by either combining the necessary qualities in partnerships, or by employing an efficient office manager.

Preliminaries and working drawings are produced by a group who stay on the same job from beginning to end. Each person in the group is given a task for which he is wholly responsible. The person in charge of the group is responsible for the whole job, and makes sure that all the points are settled, so that no one has to stop and wait for decisions, and the drawing may proceed with very little obstruction. In general, there is a very large delegation of responsibility and this makes not only for greater efficiency in the office but also for a spirit of co-operation and a sense of achievement.

The quality of architectural design will depend on the general outlook of an office and the talent of the designers, but under the American system good co-ordination between design and construction is taken for granted.

* Fees are calculated in various ways. The New York Chapter of the AIA propose the following schedule of fees for various classes of buildings:—

Schedule A

Projects of minimum requirements in planning and design such as: Factories, Warehouses, Public Garages, Repetitive Dwelling Units, etc. Building Cost and Percentage: $250,000—6%. $1,000,000—5%. $4,000,000—4%.

Schedule B

Projects of average requirements in planning and design, such as: Hotels, Office Buildings, Mercantile and Department Stores, Banks, Welfare, Dormitory and School Buildings. Building Cost and Percentage: $250,000—8%. $1,000,000—7%. $4,000,000—6%.

Schedule C

Projects requiring specialized knowledge, such as: Libraries, Government Buildings, Hospitals, Laboratories, Theatres. Building Cost and Percentage: $250,000—10%. $1,000,000—9%. $4,000,000—8%.

Schedule D

Residences, Churches, Monumental or other work of unusual requirements: a minimum of 12 per cent.

For decorative furnishings, furniture, and special interiors: a minimum of 15 per cent.

Alterations and Additions

For alterations and additions to existing structures, the minimum basic rates under each classification should be increased 50 per cent. Special conditions may require adjustment of this recommended fee.

Since the method of arriving at fees on a percentage basis is not considered very equitable various alternative methods are in operation. The other methods of payment are:—

Fee plus Cost—where the client pays for the time and expenses of personnel spent on design and preparation of drawings, and a percentage fee to the architects to cover overheads and profits.

Salary Method—the architect's expenses are paid by his client and he is paid a salary for the duration of the job.

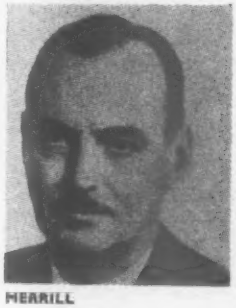
2

SKIDMORE, OWINGS AND MERRILL, a firm whose size and complexity have made it one of the bases of the legend of American 'design factories,' is described in its humanity, flexibility and adaptability by **Paffard Keatinge Clay** (A.A. trained) who previously worked with Le Corbusier, Frank Lloyd Wright and Raphael Soriano, and is now a member of S.O.M.'s Chicago office.

Of the four U.S. offices of Skidmore, Owings and Merrill the Chicago office is the largest and fastest growing, having doubled its size during the past year to include 350 people, including also mechanical, electrical, civil and structural engineers.

SKIDMORE

OWINGS



MERRILL

To many outside the organization it seems a mystery that an architect's office of such enormous proportions can concentrate so directly on the pursuit of a fine art, keeping its head above commercialism with an increasing unity and strength of direction. There is no great figurehead, no Mies nor Corbusier, to provide the focus, to attract like disciples, or to herald the way, and yet no other office is doing such work. This may be due to the unusual position of the designers.

They are all young men. Most of them have strong convictions, and are entrusted because of those qualities with the responsibility of a building. Some are straight from school, others were in the Bauhaus, and some are voted to the rank of general partner having shaped the architecture of S.O.M. by the buildings they design, the Lever House or the Air Academy, but in no case is the architecture the outcome of established principles of design or office practice. It is the building itself that attracts single-mindedness and suggests the next step rather than a theory or a personality. The general partners state their purpose in simple words: that they work together to achieve what they could not possibly handle alone. But behind that lies a consciousness that this kind of team work must steer clear of two ever-present pitfalls: the weakness of popular approval and the anarchy of individualistic expression. This is resolved in the careful selection and then confident support of the designer or chief architect for a project. The chief of design, the project managers, the partners themselves may try to influence him, but the concept is his and the final decision lies with him where the architecture is concerned, because they feel that if a building is to stand as a consistant whole it needs the strong hand of a single man. Consequently an enormous personal interest is developed in the project and the designers' time and energy are devoted far beyond the limits of office hours. Discipline, confidence, freedom are conditions, but why is there good architecture coming from this office second only to the work of the great masters? In the final analysis it can only be said that the atmosphere is right for it.

Each project is handled by a small office set up specifically for that job within the broad framework of the organization. In this way it is possible to develop a project by combining the advantages of the personal interest and intimacy of a small office centred on one idea, with the wide range of technical assistance and specialized experience only available in a large organization.

A project manager, representing the firm, is directly responsible to the client for the job. His work may begin with the promotion of the project or the outlining of the programme, but it is intended that a designer is selected as chief architect for the job at the earliest stage, and that he is present at all meetings with the client.

In the smaller jobs of a million dollars or less, the designer may work entirely on his own from the first site-use plan to the definitive details. In the larger jobs he may have one or two assistants to work with him, to do research, to study alternative solutions, to make sketch models and presentation drawings. The greatest advantage of this arrangement is that the assistant is completely familiar with the architect's intention and can follow the project through working drawings, checking and making detailed design decisions all the way along, while keeping a sheriff's eye on the other less architecturally minded departments. In the case of the Air Academy, which forms a large office in itself, extending over two entire floors of the office building, the project is again broken down into smaller groups. In one group four or five may make up a design team under the chief architect, but with each working out his own solution to the problem more or less independently until a certain point in the development where they go into conference and settle upon the solution that they will adopt, from then onwards working as a group on one scheme. This simultaneous method enables the chief architect to feel out the problem without spending time on eventually discarded alternatives.

When the design is approved by the client a set of drawings known as definitives are made by the designer, their purpose being to provide the necessary directions for working drawings, pinning down as many details as time permits. Simultaneously a job co-ordinator is selected from the production department to work closely with the designer and the engineers and to form the nucleus of a small office that will carry the job through working drawings. A complete break-down of the cost of the building is made by the estimating department at this stage, on the basis of the definitives, to determine ahead of time any changes necessary to bring the building within the allotted budget. There is no filing of details and little stereotyped office practice even through working drawings. The attitude of the design department to begin a job with a completely fresh start, questioning and studying out the alternatives for each step it takes, is not always the most efficient way to do business but the gain is in setting new standards for architecture in terms of pure solutions to everyday problems, which in other large offices are hacked from commercial type renderings.

Perhaps the real secret of the consistently fresh work that is coming out of this office, is the investment made in the opportunities it gives to the eager minded young architects whose energies in other parts of the world are so often sadly gone to waste, but which are here channelled into actual practice from which they in return reap the fruit of experience in the great discipline of building.

3

VICTOR GRUEN and **RICHARD J. NEUTRA** are the heads of two smaller offices of very different types, the former an expanding business organization, the latter a highly personal team headed by a distinguished pioneer of modern design in America. Their methods and output are contrasted by **John Penn** (Cambridge trained) who spent most of his two and a half years in the USA working for these two architects in Los Angeles.

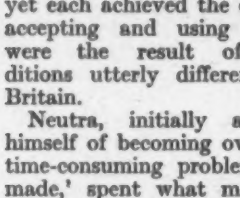
It is difficult to tell to what extent the character of American building is affected by the organization of work in architects' offices, and equally difficult to decide which particular patterns of organization are good, since it is not always easy to see the point behind certain developments, and to value them accordingly.

In a country where maximum production and maximum consumption seem to be the rule, it is inevitable that definite value is attached to quantity of output, and architects who organize their work to this end often gain greater opportunities to influence trends. Whether this is desirable or not is not the point here, but it has to be

taken into account in considering the position in America.

I worked for two architects, Victor Gruen and Richard Neutra, whose attitudes to this question of output differed, yet each achieved the ends he desired by accepting and using disciplines which were the result of economic conditions utterly different from those in Britain.

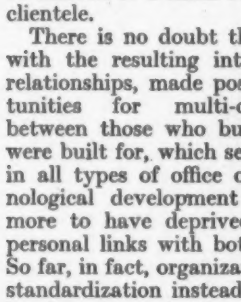
Neutra, initially at great risk to himself of becoming over-involved in the time-consuming problems of the 'custom made,' spent what many people might have considered an extravagant amount of energy arriving at design answers to specific problems (in spite of the fact that by now this can be shown to have paid him a hundredfold). Perhaps all that can be said is that at a time when a choice had to be made between quantity and quality, Neutra chose the second, and, owing to the particular circumstances of technology then prevailing, at definite cost to himself of a small output for a limited clientele.



RICHARD J. NEUTRA

There is no doubt that his small staff, with the resulting intimacy of personal relationships, made possible many opportunities for multi-dimensional links between those who built and those who were built for, which seems most desirable in all types of office organization. Technological development seems more and more to have deprived the architect of personal links with both staff and client. So far, in fact, organization has resulted in standardization instead of standards, and has forced conscientious architects to make the choice that Neutra made.

Victor Gruen, a great friend of his, devotes much of his ingenuity to problems of production, and obtains both quantity and quality of output by methods that derive from a totally different set-up to Neutra's, but at the cost of an intense separation of activities within the office.



VICTOR GRUEN

An extremely imaginative attitude towards building problems is characteristic of both men. Neutra's staff is contained in his private house, while Gruen's organization still expands according to the laws of a successful business. Of the two, it might be said that Neutra's achievement has been more difficult, especially in a country like America; but this is not to say that it has been either more or less worthwhile than Gruen's.

It is rather that the first has made his mark in spite of, not because of, the characteristic pattern of American culture, while the second has 'taken the bull by the horns.' Possibly the quality of Gruen's work expresses organization above individuality, yet it does not appear to suffer as a result, and in this it is characteristic of some of the most significant present-day work in all countries.

For even if it were true in the past, it is no longer true to insist that high level organization necessarily always need be destructive of humane relationships, and in particular of those creative solutions to problems of living that must always depend upon them. Victor Gruen, by careful choice of staff, and by the division of responsibility for different jobs among different teams, achieves to some degree a 'horizontal' as well as 'vertical' organization that breeds great enthusiasm in the office. Whether sufficiently close contact is maintained between teams and clients is a matter of opinion. But it does seem that on very large scale operations this may not serve the interests of good practice.

It could, perhaps, be argued that any form of organization that lessens the opportunities of clients to alter, and even at times rebuild for themselves, their own environment is not, in the long run, in the best interests of any society. But this opinion, of course, contradicts that generally held—that the architect should assume all tasks of organization rather than that he should seek to put greater and greater opportunities for self-expression—possibly in the shape of flexible and adjustable structures—at the disposal of his clients.

One thing is certain, however. In the long run quality of work always must depend upon individuals who find expression in different ways; even, at times, in large scale organizations. Perhaps a measure of Gruen's genius is that within his organization he still manages to keep the path clear for the valid design that may one day develop from, and so change, the very structure of its origins. He recognizes that design for life can be nothing if not individual, but that quantity of output no longer need be associated with poor quality, and in this makes an important new contribution. America has committed herself to all the troubles that highly developed organization brings, and, paradoxically, must accept organization to bring about those processes of decentralization that she needs so badly.

A constant volume of building, good, bad or indifferent, at least guarantees that ideas and experiment are expressed in concrete shape. Architecture gains by the process of constantly being rebuilt because this retains spontaneity. Even though pursuit of novelty, for its own sake, is overindulged in, especially in the U.S., at least there is never a refusal to try out what is new. Nor do I think that this experimental attitude towards building depends entirely upon wealth, or that unlimited funds are a condition for good architecture—although certainly it seems that there comes a moment when resources, for one reason or another, can become inadequate—or incapable of being used in an economical way. This moment comes at the same time as the ability to continue further experiment fails, as seems the case in England at present.

Confidence that no problem is too hard to tackle is as characteristic of Victor Gruen's organization as it is of America. Consideration of this potential ability to turn situations to advantage, as opposed to undue criticism of the way in which Americans have used their opportunities up to now, is what I think would benefit us most. Nor does it seem that any accurate forecasts can be made by examining contemporary form in the U.S., since it has developed as the expression of continual experiment in a country that considers things old-fashioned as soon as they have been made.

For this reason, it might be tempting to say that to the extent to which organization develops satisfactorily, to that extent will the pitfalls of an established style of architecture be avoided. And it seemed to me that lack of style is one of the most characteristic features of Victor Gruen's work.

His buildings resemble framework. They impose no authority on those seeking to build a scheme of life within them.

4

RICHARD J. NEUTRA, **in San Francisco, whose work depends to a large extent on standard details and methods accumulated over the years, and** ***ABRAHAM W. GELLER,*** **in New York, whose approach is more experimental, but also depends upon an intelligent exploitation of the trade catalogues, are contrasted by** ***R. Desmond Henly*** **(A.A. trained) who worked in the U.S. from 1950 to 1954.**

Neutra needs no introduction from me. I would, however, like to say that it was interesting to compare his early work in California, consciously of the 'International Style,' with his recent work. The latter makes great use of local materials and has an indigenous character with a freshness that is seldom seen amidst all that building work now going on in the far west.

His office, designed by himself in the early 'thirties and located near Los Angeles, is an extremely functional and refreshing place in which to work; I spent about eight months there.

Neutra is one of the few contemporary architects who is able to make private house architecture pay, and this I feel is due to his extremely efficient office organization, and to the fact that he can produce good contemporary architecture that is both vigorous and human. The result is that he is in great demand.

In his office, which operates on a five-and-a-half-day week from 8.00 to 5.00

(common in the far west) one finds such aids as Instruction Manuals prepared by Neutra through the years for the guidance of his assistants, and giving the procedure to be used for the various stages of the work. There are also specially prepared forms on which to record telephone conversations and meetings with clients, etc., all of which are circulated to the assistants concerned, keeping them fully informed.

Perhaps the most unusual feature one notices is the system of standard details and specifications developed over a long period, and constantly being improved. These form the bulk of details for each new building, and save a great amount of unnecessary draughting work. They consist of 8½-inch by 11-inch sheets of tracing paper from which a print of a typical detail may be made, the latter being bound in book form for each job. In my time the staff consisted of Neutra's son and seven other assistants, the former being mainly responsible for office organization and job supervision. Five assistants comprised the working drawings and specifications team, one of whom concentrated mainly on details and another on specifications and the business side of the job. There was one draughtsman. My job was personal assistant to Neutra and this entailed the development of all the preliminaries in close co-operation with him. The secretarial staff consisted of two under the control of a person of considerable experience and ability who relieved Neutra of much of the everyday office matters. The publication and exhibition material were in the capable hands of Mrs. Neutra.

Neutra always gave a great deal of attention to the site and the siting of his buildings, and to questioning the clients on their requirements, which he made sure were understood by all concerned. Then a number of studies were made of the proposed building, all of which were on standard small printable sheets which, when presented to the client, convinced him of the very thorough investigation that had been made. This, I felt, was a sound policy.

No drawings were ever done in ink unless absolutely necessary, which not only saved a great deal of time, but also made it simple to execute changes to the drawings when required. The use of pencil for all drawings is quite common in America.

There was a noticeable ease with which Neutra produced one excellent house after another, and the comparative speed with which they passed through the working drawing stage (sometimes in three weeks) was due largely to his well trained 'team' of assistants, his very good office organization, and to his standard details. Other larger jobs were handled in the same efficient and sensitive manner.

Generally, I found that the office organization was to some extent flexible, but seldom did one man see a job through all of its phases, however small the job. There was, therefore, a tendency for a person 'to lose contact' with the building at times despite the excellent inter-office communications. One cannot, however, question the efficiency and wisdom behind Neutra's whole organization.

Geller is in his early forties and in just a few years has come to be recognized as one of America's leading contemporary architects. He has had marked success in many competitions, and most of his work has appeared in the professional journals.

In a small unpretentious office on the east side of Manhattan he has created a working environment that is both stimulating and vigorous, and in my experience unequalled.

ABRAHAM W. GELLER

Perhaps the most striking thing about his office is the informality, the tolerance and understanding that is so much a part of Geller's personality. This informality is reflected in the use of Christian names and the lack of hierarchy. The tolerance is shown, for example, in the flexible policy towards office hours and overtime work. The office operates on a five-day week from 9.30 to 5.30 and the staff is given considerable 'freedom' and is, therefore, only too willing to make adjustments to personal schedules when the need arises. Likewise the necessity for overtime work is largely left to the discretion of the individual. Perhaps, on the whole, employers are not sufficiently aware of the dividends resulting from such an understanding.

One is very soon aware of a 'battery' of filing cabinets consisting of design files and trade catalogues, the latter serviced by an agency sponsored by the building industry and known as 'The Architects and Engineers Service.' This is in constant use by all assistants. Telephones, too, are never idle and it is quite evident that 'the search is always on' for new materials and for imaginative ways of using them. Frequently I remember manufacturers saying such things as, 'that has never been done before' or 'we are quite sure it cannot be done,' and later, 'we can't see how you did it.'

Another important feature of Geller's office is the existence of job-books, which consist of a notebook for each job, in which all meetings, telephone messages, trade enquiries and the like that are pertinent to the job are entered and are, of course, in chronological order. Their value is obvious.

Geller's staff averaged four, and I worked with him for eighteen months. Assistants were very carefully chosen since they became his team of 'personal assistants,' working directly under his leadership, and all were, so to speak, 'dedicated to the creation of good architecture.'

As far as possible the assistants were given one job to see through all of its stages and in this way they acted more as architects than as normal assistants. Where expedition was necessary the whole office might concentrate on one job for a period, and on larger jobs the smallest team capable of handling the job was used. In this way assistants became 'involved' in their work, and were not just a part of a machine producing buildings.

As in most American offices the consulting engineer was always brought in during the very early stages of the preliminaries. Trade representatives were also called in early to discuss their details with respect to the overall concept, and to anticipate as many problems as possible before the working drawings were commenced.

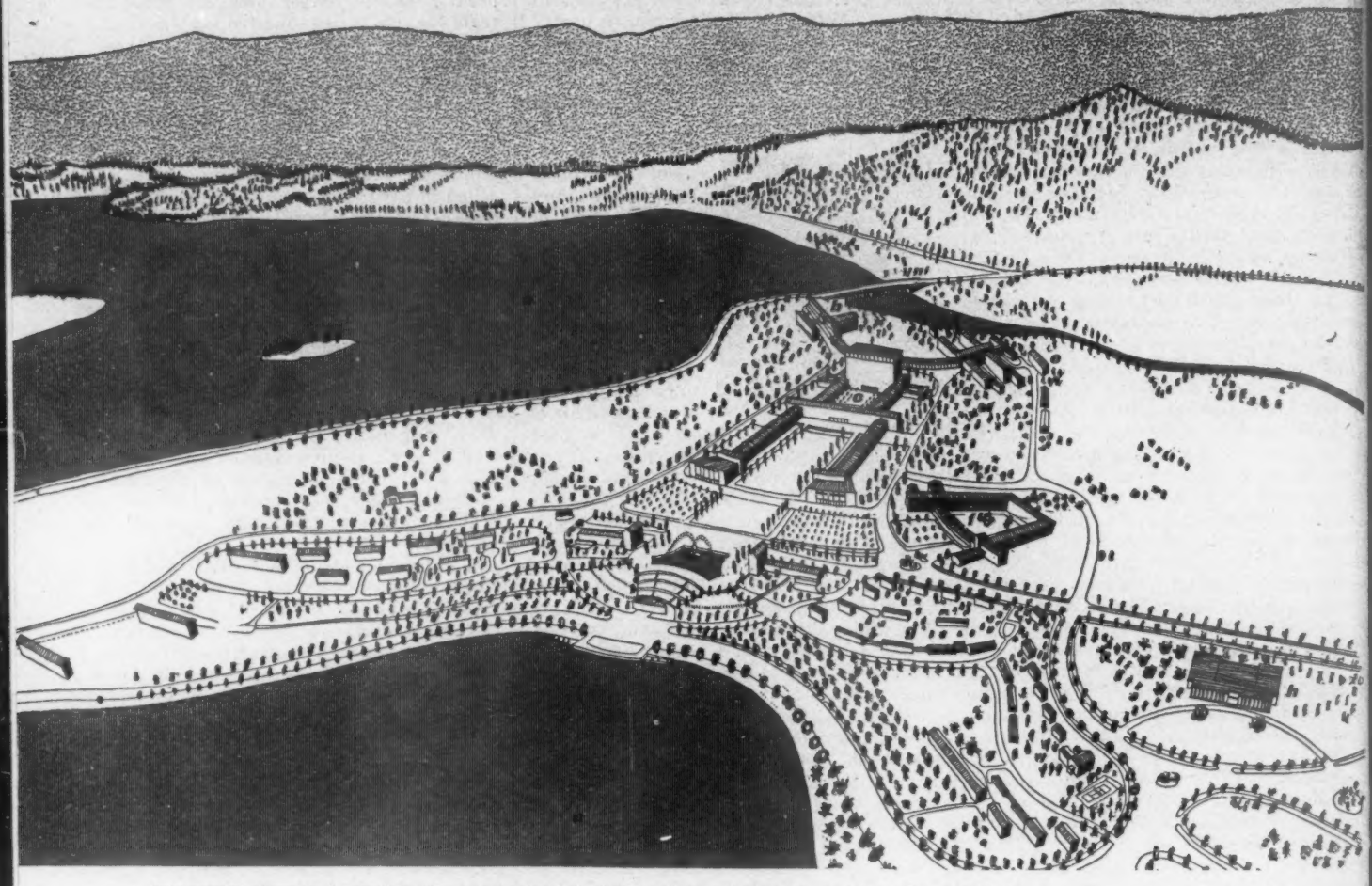
Clients, too, were encouraged to come in to the office to discuss the job at all stages, and invariably around the drawing board. This was at times a lengthy procedure, but it did keep everyone completely informed and ensured that the client's requirements were being met. It was encouraging to note that Geller's clients at least, were quite well aware of their needs as to space, fittings, and general arrangement, although seldom did they attempt to impose their aesthetic ideas.

The time spent on each job is not easy to assess in an office such as this. Many of Geller's jobs are for clients who are not only interested in having a good building, but also a good piece of architecture, and so are often relatively more patient than the average client. Geller was always ready to study and re-study the smallest of details in order to satisfy his demanding clients, and, of course, his own high standards. There are few architects who are willing 'to invest their profits in perfection,' and this is to be admired since no architect can demand, much less get, an increase of fees for any extra study done in the cause of good architecture.

We sometimes used a special type of contract approved by the American Institute of Architects, and designed, I believe, for the client who wants to act as the general contractor with the help of his architect. For this work, and hard work it is, the architect can ask for an extra four per cent maximum fee. For this he is responsible for the inviting of tenders from all sub-contractors (and in America there are a great many), the integration of the work of each trade with regard to job organization, and a greatly increased amount of site supervision. One important advantage is that the architect can select his sub-contractors and in this way obtain higher standards of work.

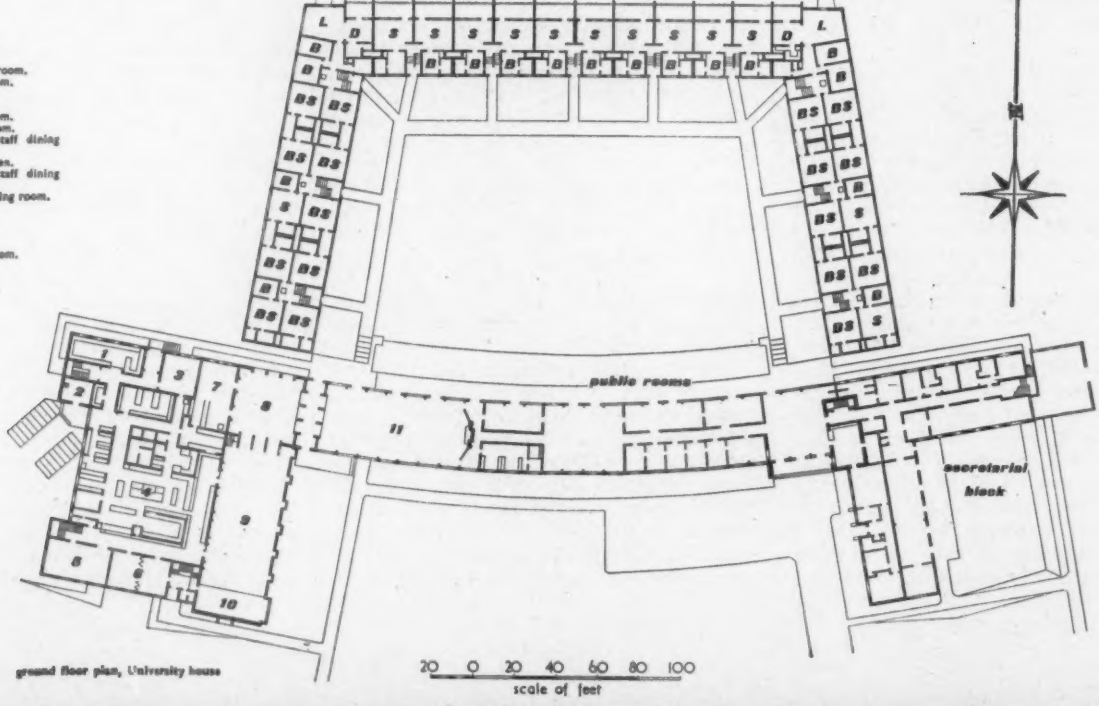
The type of service that Geller gives his clients is as complete as I have yet seen, and this raises the question of the relationship of fee to work done. One can see that the interest in the job beyond the normal architectural service is purely up to the architect in question, and Geller is the exception. He is an architect who 'lives architecture,' and this is quite evident in the working environment that he has created, and in the work that he does.

The National University at Canberra, described below and on the following pages, is one of the largest of current Australian building projects, which form the subject of an exhibition at the R.I.B.A. that is open until March 24th.



key to perspective: *a*, future lakes. *b*, physics block. *c*, library court. *d*, medicine block. *e*, boiler house. *f*, university house. *g*, staff housing. *h*, institute of anatomy (existing.)

key to plan.
B—bedroom.
BS—study bedroom.
D—dining room.
L—lounge.
S—study.
1, laundry room.
2, garbage room.
3, domestic staff dining room.
4, main kitchen.
5, technical staff dining room.
6, private dining room.
7, bar.
8, foyer.
9, refectory.
10, dais.
11, common room.



ground floor plan, University house

UNIVERSITY AT CANBERRA

ARCHITECT | **BRIAN B. LEWIS**

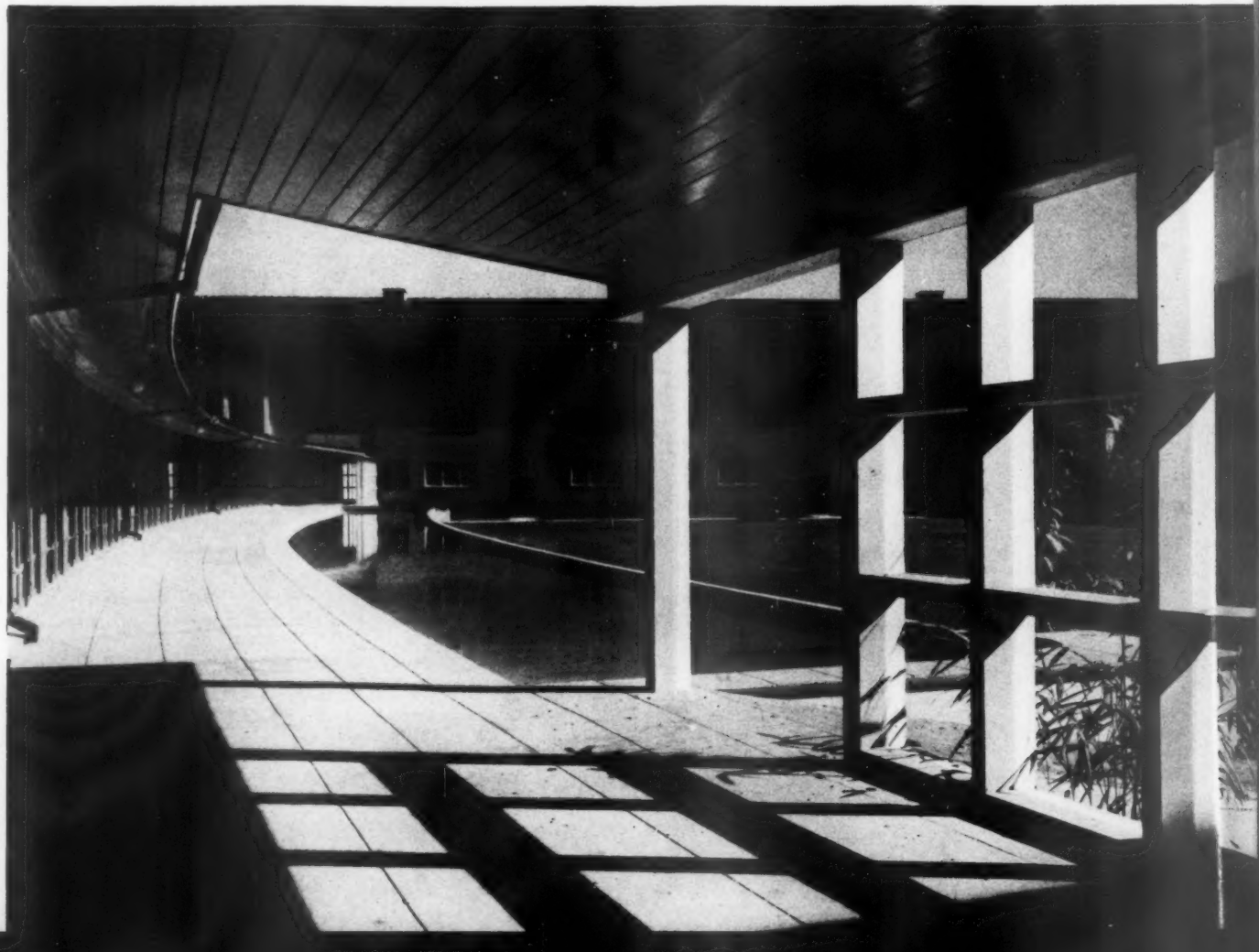
1, the south-east corner of the inner court of University House with, right, the single-storeyed wing of communal rooms, fully glazed on the north (near) side.

In 1947 the Federal Government of Australia decided to establish the National University in Canberra to supplement the universities of the various states, and to consist of four research schools—for non-clinical medicine, physical sciences, social studies and Pacific studies.

The site of over 200 acres consists of lightly wooded undulating land with one clearly defined ridge dominating it and coinciding with one of the axial views of the original plan. The central buildings of the University are planned about an open space on this ridge, the eastern end being open so as to give views to the east. The old hospital buildings serve temporary university

2

2, from the main entrance looking towards the refectory; the freestone sculpture is by Gerald Lewers, of Sydney. 3, the west wing of the residential block, which adjoins the refectory, from a viewpoint corresponding with that of 2, on the inner side of the centre block. The grille on the right is of pre-cast concrete. On facing page, 4, University House from the north-west; the system of individual balconies to each study unit is seen on the north face; the block projecting extreme right contains kitchen, services and staff quarters. 5, fireplace and screen of wire-brushed timbers in the common-room (occupying western portion of centre block).



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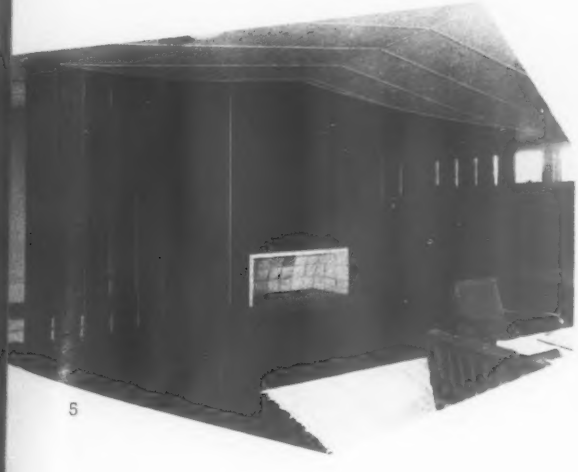
purposes ; however, no existing work influenced the new layout. The initial programme included a hall of residence, staff houses, a library and accommodation for the four foundation schools. 'University House', primarily a hall of residence, is also the social centre of the University, providing accommodation for formal functions.

It is built on three floors on three sides of an irregularly shaped quadrilateral court, the fourth side being a low curved wing of public rooms overlooking the court and facing the north sun across a pool running the length of the wing. The residential accommodation consists of 30 bedrooms and 96 flats ; 60 of the latter contain a large study-bedroom, balcony and bathroom, and 30 contain a large study-living room, bedroom, large balcony and bathroom ; six large flats in addition are available for special visitors. The climate of Canberra makes the balconies valuable for reading and working in the open air.



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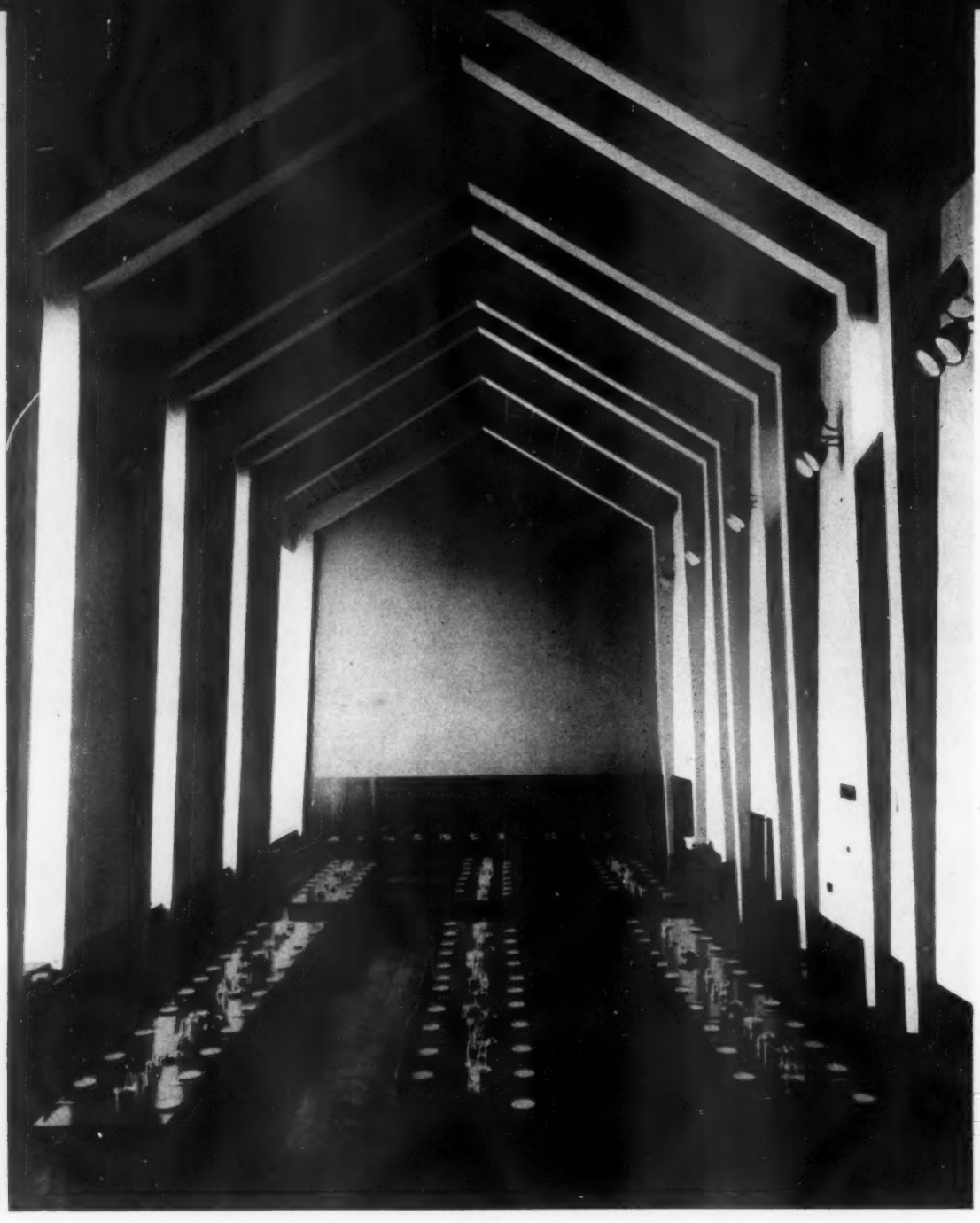
The refectory is a high room, 85 feet long by 32 feet wide, seating many more than the number of inmates of University House. Tall east windows give the main lighting, but subsidiary small high windows at the opposite side give extra light and cross ventilation. The end wall space behind the dais will be decorated with a mural painting. Adjacent to the dais end of the refectory are two suites of rooms for smaller functions, which have their own entrance.

The structure of University House is load-bearing brick with concrete floor slabs. The external walls are of



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6, interior of the refectory, looking west from the musicians' gallery to the dais; panelling, floor and furniture are in walnut. It is intended to add a mural to the end wall.

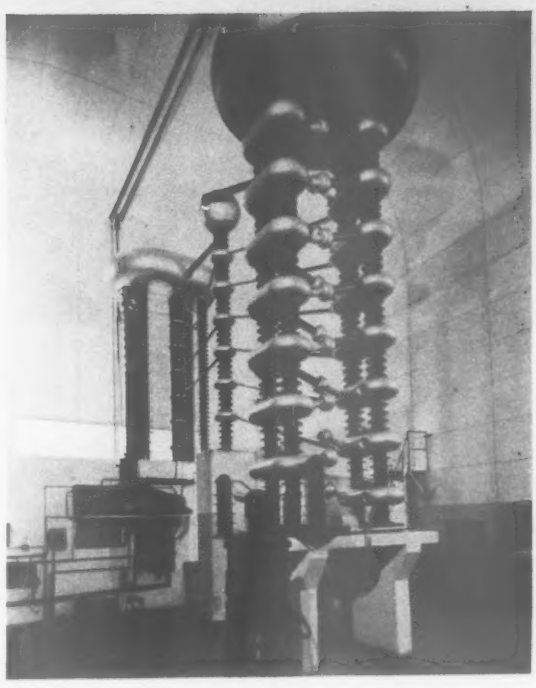
common bricks mortar-bagged and coloured; the perimeter walls are a light yellow, the courtyard walls are of a mushroom tint and the low frontal wing is dead white and has a low-pitched copper roof. The main roofs of the building are of terra-cotta tiles.

Heating is provided by floor panels between the concrete slab and the wooden floor over. In addition all living-rooms have normal water radiators at places of heat loss. The refectory and kitchen are fully air-conditioned. The low wing of public rooms has a wall of sealed-cavity double-glazed units facing into the courtyard.

The Institute of Physical Sciences consists of two distinct buildings on either side of the approach road connected at basement level. The office block has brick walls, floors of concrete slabs and an asbestos sheet roof. On the other side of the road is the workshop and experimental block which has a bolted steel frame supporting corrugated asbestos walls and roof, backed for insulating purposes with 3-in. wood-fibre boarding. The plan of the experimental block, T-shaped, with the top member crowning the ridge and the tail running out over the steep hillside, makes possible the shielding of the main experimental area by the surrounding soil on three sides, the fourth side having mass-concrete protection.

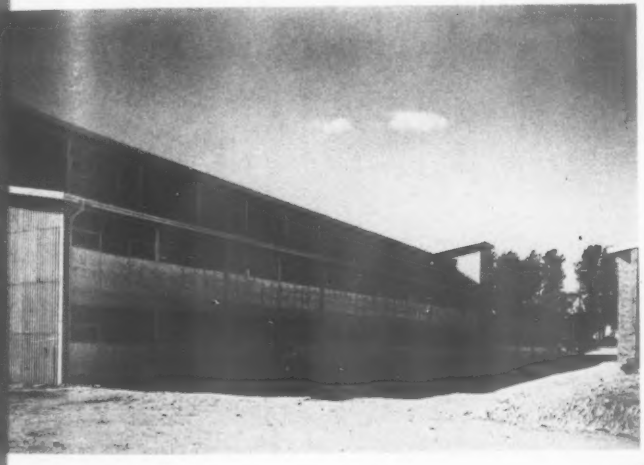
The workshop of the Medical Institute is of similar construction to the Physics experimental block. The

UNIVERSITY AT CANBERRA



7, the high-tension set in the research school of Physical Sciences H.T. laboratory, which is specially lined for radiation protection. 8, south face of the research school showing two floors of small workshops and laboratories and clerestory to principal workshop behind. 9, workshops for the medical research school. 10, general store, constructed in no-fines concrete blocks.

7



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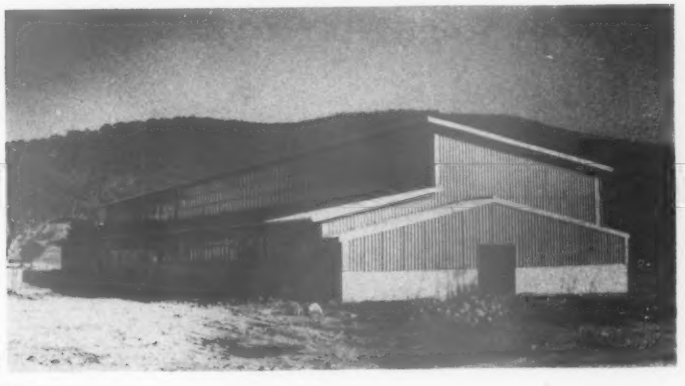
buildings of the medical school proper are under construction and will be connected with the workshop.

The first of a range of utility buildings for stores and workshops has been built, with walls of no-fines concrete blocks, buttressed at the points which exceed the low crushing-strength of the blocks. A gantry crane is supported from the roof trusses which are of timber framing.

Part of the staff will have houses on the university site and a group for senior workers has been completed, using the only steeply sloping land.



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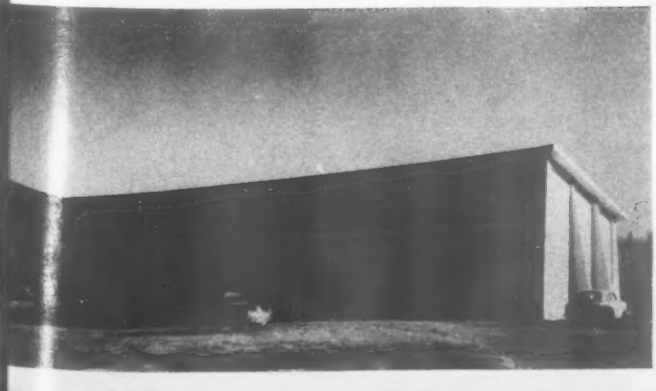

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Unlike the other ancillaries of motorised travel in Britain, which came in unplanned and unconsidered and have become agents of Subtopian squalor, the motel has from the first been a consciously designed service – the pioneer motel at Newingreen near Folkestone (architect: Louis Erdi) is seen in two views below. The need to distinguish this new type of accommodation visually from existing services has made the choice of a recognisably contemporary and architect-designed style (which hardly any other roadside artefact possesses) an obvious one, but there is more to motel architecture than the creation of a style, and if such matters as landscaping, siting, circulation, servicing, etc., are not carefully considered then the motel, which has so far shown some promise of doing better than other highway services, will also degenerate into Subtopianism – a threat which is visible already.

Diana Rowntree

MOTELS

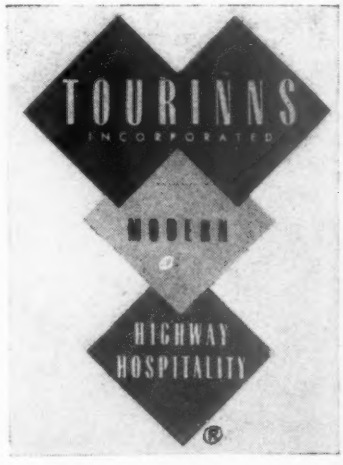
We in the British Isles have every right to be proud of our Coaching Inns. We have been proud of them for two hundred years. For nearly half that time their original excellence of plan and comfort has been replaced by their historical appeal. The coming of railways created its own demands upon the hotel trade. The immediate result was the Railway Hotel. The indirect result, momentous architecturally, was the resort. Whole new towns consisting of hotel and sub-hotel accommodation were built, and most of our fishing ports put out engulfing growths of this kind. In fact the demand made by the railways was so well and truly met that the simple demands of the motorist have not been met at all. Such enormous resources of accommodation existed by the beginning of this century that only slight expansion seemed necessary to cope with motor tourists. The fact that the motorist wanted a lodging rather differently conceived simply could not be entertained. Beds and various grades of plumbing existed in plenty. The proprietors did their best to squash in a few motor cars.

Our towns are very closely spaced. The motorist brought new prosperity to the existing network of coaching inns. Such new hotels as were built tended to model their planning on these. Symmetry, cosiness and antiquity were mistaken for the real virtue of these inns, which was, as is usually the case with a successful building, intelligent planning for the job. Cosiness in this climate is certainly not to be despised, but had our ancestors had central heating at their command I doubt if they would have bothered much with warming pans.

In the U.S. where no closely spaced grid of towns existed in advance, two types of hotels have developed for motorists. The resort type consists of a scatter of holiday

bungalows with a central restaurant and pool. The highway type exists alongside the road for the long-distance driver to stop off for the night. There may well be a future in Britain for the first type, in fact the sound of it is immediately attractive. But the second type is already here, and planning to spread fast. This matter is urgent. Let us take a look at it.

Our resorts can take care of themselves. Much of their charm is their visibly evolutionary character; an outer skin of flowery suburbs, flattering the Regency and Victorian layers of painted terraces, some eighteenth century gems, and a core of tangy mediaeval squalor. Such towns as these can absorb almost any novelty. But for the roadside motorist hotel absorption is out of the question. Even if urban sites were two a penny one explicit motorist demand is a night in the country. Preferably on the loveliest stretch of road, with the sound of a rushing stream and/or distant views. Such a place will strike the motorist as very pleasant. What concerns us all at this moment is how the motorist will strike the place. There will have to be a building and a sign, both potential spoilers. Probably no reader of the REVIEW would seriously dispute the possibility of a beautiful building. Inn signs, too, have added something very agreeable to the English scene. The particular danger of a sign directed at motorists is that it must be read by someone driving at fifty miles an hour. One's immediate feeling is that the sign must be LOUD. The visual equivalent of loud is in fact, not vulgar, but large and simple in scale. Perhaps it is not any intrinsic characteristic that makes most signs directed at motorists so repellent, but the fact that we have no wish to look at them and the assumption that the crude structure they are mounted on is invisible. A tin plaque fixed to a heavy structure of unwrought timber is the usual form. The plaque is naïvely intended to be seen as a painted sign upon a painted landscape. If we were to design the eye-catching sign and its support in one operation we might get something as pleasing as those pub signs that hang from a vine of delicately wrought iron.



3, an American motel sign. Top, white lettering on black diamonds. Centre, black on yellow. Bottom, white on red.

1

2

1, the sign to the motel on the Exeter by-pass, contrasted with a design by Kenneth Rowntree, 2, which attempts to catch the eye by direct visual image, not flashy lettering.

The motorist cannot stop instantaneously, even at the bidding of the 100 per cent successful sign. An intelligent practice followed in the U.S., though not for some reason by the first motorist hotels in this country, is to put the first sign 500 yards ahead of the hotel. Even so, the hotel itself will need an architectural allure as potent as that of the sign. One can well see the temptation to be flashy. Certainly financial returns on these hotels are more than usually dependent upon the skill of the architect. And I mean for once his ARCHITECTURAL skill. Not his skill in dealing with quantity surveyors, or in correctly forecasting costs, or experience in working out the most economical grid. When it is a question of stopping motorists, of instantaneous seduction, the ability to design an economical grid will get you nowhere. For this you want an artist, someone who can make the simplest statement in the most telling way. There is practically no constructional problem. The planning problem is an interesting one, and quite new. But the gruelling test of the design is that it must be sold not once to a client, but to a given number of people every day of the building's life.

What in fact does the motorist want that is not to be found in a good traditional hotel? Firstly, a night's lodging that is not a break in his journey but part of it. This means direct under-cover access from

[continued on page 115

4

4, a resort motel seen from the lake it overlooks: Maple Valley, Washington. This building has perfectly caught the calm spirit of the landscape. 5, unpretentious motel entrance: Newcastle, Delaware. 6, car park under the rental units: Fort Lauderdale, Florida. This is an easier problem to solve in America: in England a lock-up garage for each car is insisted on. 7, multi-storey garage with motel on left: Dusseldorf. This motel is as well in scale and keeping with the autobahn as the one at Maple Valley, above, is with the lake.

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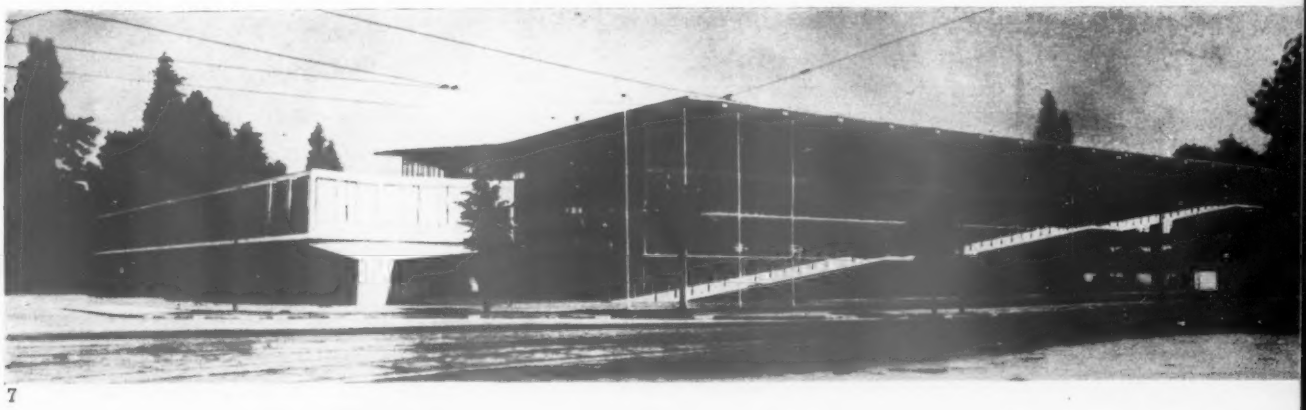

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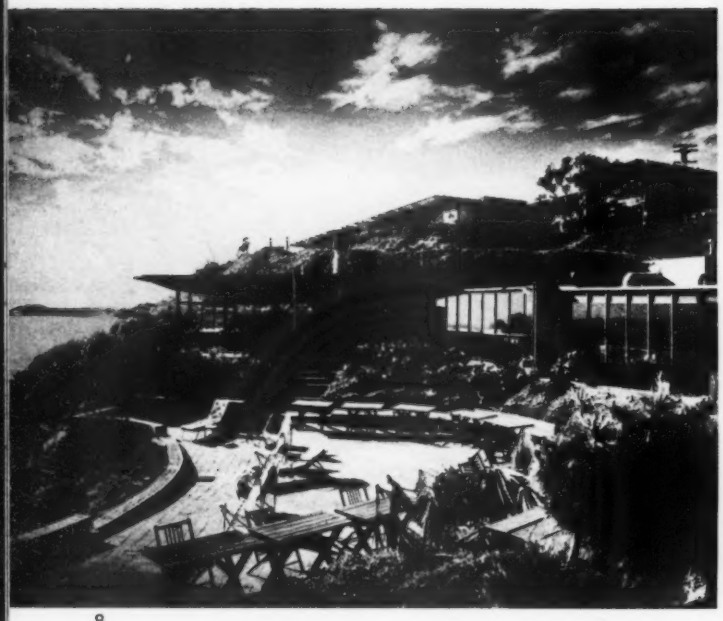

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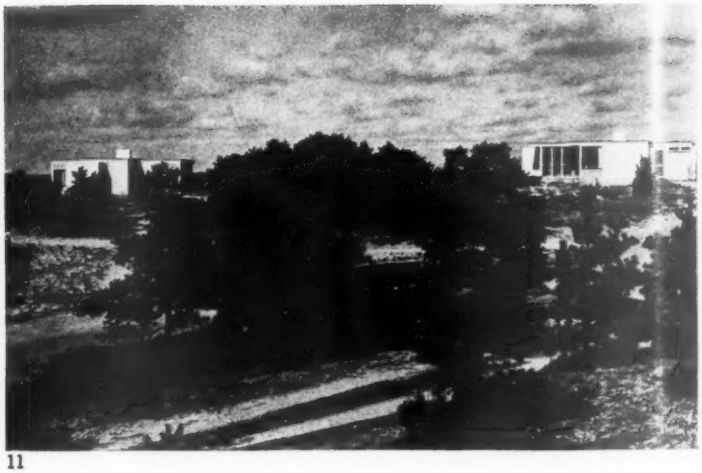

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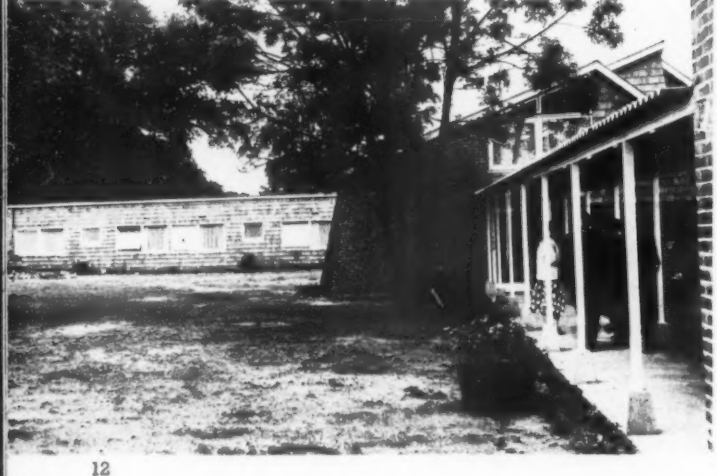

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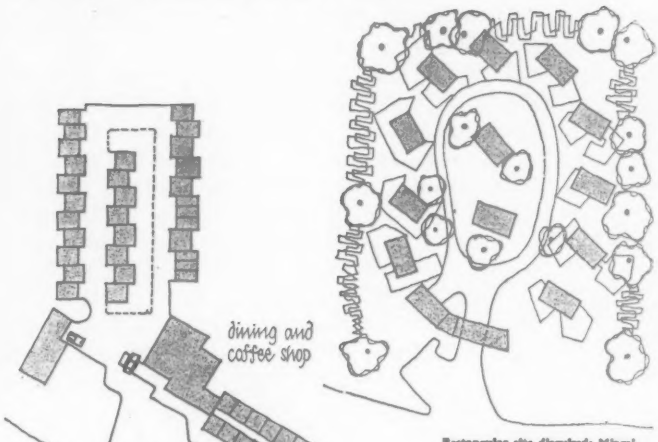
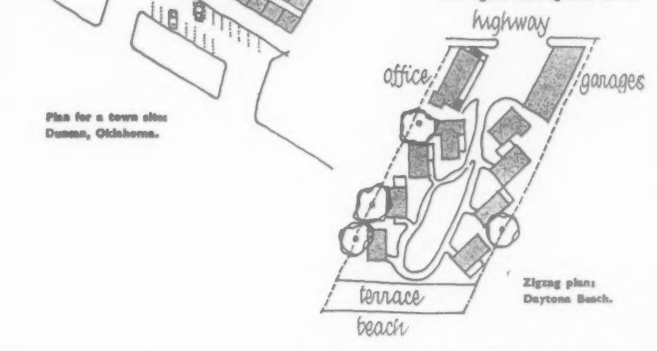
8, sloping site used to give both rows of rental units a seaward view: Malibu Beach, California. 9, the seaward-facing balconies of the upper row at the same motel. 10, skilful use of broken-up elements on a small steeply sloping site: Austin, Texas. 11, pairs of rental units scattered over a wide site: Wellfleet, Mass. 12, rental units and link with restaurant: Ower, New Forest. Here a quiet courtyard is spoilt by phoney contemporaryisms. Note the curious behaviour of the roofs, the splayed wall valiantly buttressing nothing, in contrast to the minimum weight structure beyond. 13, an English motel apparently built on to an early nineteenth century pub: Exeter. In fact the hotel is newly opened in a splendour of Louis XVI road-house style. The elevation of the rental units is a genuine bit of design, if one ignores the false stonework leaning against the brick piers. Architecturally they are well capable of standing on their own feet and have no need of the old world contrast. The juxtaposition is preferred by licensing authorities who are nervous of motels.

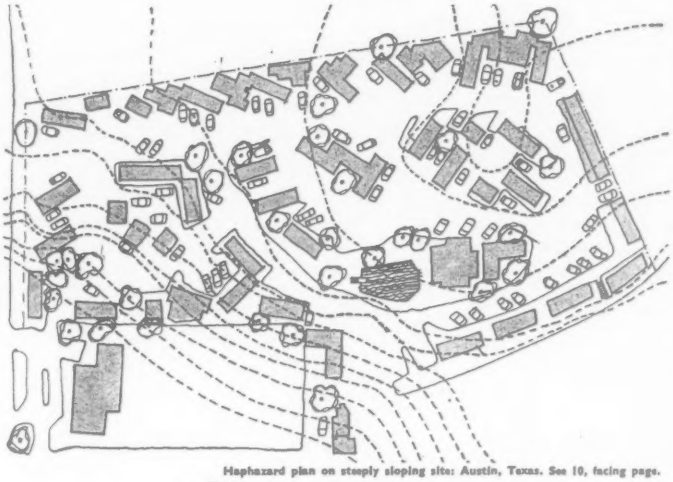


Rectangular site disguised: Miami.



Plan for a town site: Duncan, Oklahoma.

Zigzag plan: Daytona Beach.



Haphazard plan on steeply sloping site: Austin, Texas. See 10, facing page.

Units scattered on branches from a central road: Wellfleet, Mass. See 11, facing page.

continued from page 112]

motor car to room. Ideally the car should remain accessible throughout his stay, so that the whole paraphernalia of maps, sunglasses and over-coats can stay where they are, or be carried in without the need to put a good face on them for the porter's benefit.

Further, he wants to remain preoccupied with his journey. He is not geared up to the ritual of a stylish arrival, and wants to meet as few people as possible. The traditional hotel is run on the assumption that social contacts may make one's stay more pleasant. The motorist, although needing the very maximum amount of service in a very short time, would like to avoid a corresponding multiplication of the costs and courtesies of tipping.

His third requirement is to know in advance, not the probable, but the accurate total cost of a night's lodging. This is answered by the system of paying in advance, and offers no special architectural complications.

Finally, there is the getaway, at any hour one likes to name, without the usual impediments of the hold-up over the bill and the five motor cars belonging to late risers hemming in one's own. The first difficulty vanishes if one can pay in advance. The second demands the same kind of planning as the easy arrival.

Here, then, are the purely architectural implications of this type of hotel.

The main planning problem is to make all room accommodation accessible by motor car. This clearly demands a larger site than the traditional hotel. And the letting accommodation cannot be more than two storeys high. A letting unit has evolved comprising a double room, with sofa for a child, wash-basin, w.c. and bath or shower. In England so far this goes with a lock-up garage, in the U.S. simply with a car-port. Whether this means that the Americans have fewer car thieves or the British are more untidy travellers I do not know. But this difference has considerable bearing on building costs. Planning is complicated by uncertainty as to the number of travellers to expect per motor car. This is solved at present by adding a wing of single rooms to the hotel.

The second requirement, of insulating the guest from human contact, has been enthusiastically taken care of, here as abroad. The plumbing arrangements are exotically self-contained. One is automatically woken and refreshed with tea at the chosen hour. The room door is built as a double-opening wardrobe. Into this the guest puts suit and shoes which are whisked away from the other side, to be returned cleaned, the suit pressed, one supposes well before dawn, and one hopes silently. Rest, refreshment and valeting can all be achieved without leaving one's room. For food only one must venture into the restaurant.*

These are the planning points which concern the guest's comfort and will determine whether he comes back another time. The architect's problem is to assemble these units into a form that will be instantaneously arresting from the road—I hesitate to describe the little winding tracks we use as highways. The frontage of the site will have to be long, approximately 100 yards, to give motorists time to decide

* A minor omission from the British motels is a large rack for suitcases and other items brought in from the car.

and stop. So that there is financial inducement to ribbon development. At Exeter, where Louis Erdi has evolved a basic elevation for the rental unit with room over garage, he gets his effect simply by lining up his units roughly parallel with the road. Though one applauds the directness and restraint of this design, one would as a guest prefer to look out on to quiet meadows, rather than on to the roar of the by-pass. At Ower, where simplicity of plan has been sacrificed in order to have a bit of everything contemporary, the guest has the benefit of a courtyard screened by the restaurant from the road. In this matter the guests' comfort must be weighed against elevational appeal. No doubt the alternative solutions are being watched for results. One cannot have everything.

In the case of motels there are, however, two very auspicious architectural conditions. The first is that it has been found in America that initial costs of construction are unimportant compared with what is called rentability.* It pays, in fact, not to economize in initial outlay in any way that can rebound against the all-the-year-round chance of letting every room. This point is flouted by the British motels. If shabbiness will eventually repel potential guests they will do well to detail the finishes properly. But, perhaps, shabbiness is reckoned as old-world charm.

The second unusual feature of motels is that in order to distinguish themselves from the immense gamut of existing hotel architecture they have to build in a contemporary style. Luckily for them the remarkable conservatism of twentieth century building ensures that every contemporary building shows up as though floodlit. For this reason they would do better not to over-reach themselves in presentation. Erdi has thought out a genuine rental unit and thus ensured a novel and interesting elevation. There is no need in the world to add to this phoney contemporaryisms. No need to face brick buttresses with decorative stonework. One loses the decorative effect while trying to figure out the structural relationship of these materials. No need, in Kent, where he had had the polite idea of using traditional barge-boarding, to guy it with embarrassing rusticity.

The idea of motorists hotels has in this country come to the boil with plenty of scum on it. The name Motel is one that only the most strong-minded can pronounce without a smile. Unfortunately, the beautiful seclusion it promises is ideal, not only for motorists, but for furtive sex life. We may smile at the headline Motels Threaten Morals. In fact, the unfortunate Authority who has to pass or refuse the plans is in a nasty jam. If it upholds what it may feel to be its duty towards morals at the expense of the motorists' comfort and vetos the motel, it runs the risk of losing local trade to the less moral authority next door. It courts far more glaring disgrace if it can be shown to discourage American tourists, who have motels at home, and are notoriously nostalgic travellers. This is a hideous dilemma for any public body. And while it is facing it, it seems likely that the architectural problem, also of grave public interest, will, as usual, be completely ignored. Motels, with their predilection for beauty spots, their need to shock the motorist to a standstill, and their expressed intention of a ubiquitous style, constitute a menace comparable to our best known brands of tea and cigarettes for sheer baleful squalor. And I have only touched on the dangers inherent in building a single motel. In fact, it has been found in the U.S. that it is a paying proposition for competing motels to line up side by side. Imagine motel row, with its attendant filling stations, kiosks, and parked cars, and you have in mind the piece of subtopia that threatens us now. Here is a test on a nation-wide scale of whether that nasty little word is going to prove a call to action.

It is for the proprietors of motel chains to decide what clientele to aim at and what architect to employ, for the Planning Authority to state if the proposed site is already scheduled, for the Local Authority to decide whether to pass the plans, and for the magistrates to decide whether to allow another Licence in the district. Supposing that the proposed site is not scheduled for anything that prohibits the building of a motel; supposing that the building looks 'quite usual' on the drawings to the not passionately discriminating eye of the committee; supposing that local opinion is too much worried over possible immorality to engage itself on the over-all picture. It must be understood that motel chains operate on a large and potentially nation-wide scale. A decision taken in the unpromising conditions I have suggested, and taken in isolation, is not only inadequate in itself, but quite out of scale with the problem of motels and with the picture that will be seen by visitors to this country. Whose business is it to decide, on the motels' own scale, what kind of motels we want in Britain, and what kind we simply have not room for on this overbuilt island? Logically it is the business of all who care about the matter. Legally it is NOT THE BUSINESS OF ANYONE AT ALL.

Subtopia is now a recognized ill: its cure is receiving attention. Unfortunately motels have chosen this moment to spring to life. They can develop as a twentieth-century phenomenon as encouraging as our recent schools. Or they can tell the sorry story of the filling station over again. If any action is to be taken, it must be now. Two possible courses occur to me. We can appoint a body at a national level, on an interim basis, either with powers to deal with applications to build motels, or as advisor to local authorities. This body must include the guardians of several traditions, architectural, dollar-earning, road-using, and constitutional. And we can hold an architectural competition for motel plans. An exhibition of the winning plans would set general standards, which do not at present exist in the public mind on this subject. We are a committee-loving nation. Let us get down to it once again.

* *Motels*. Geoffrey Baker & Bruno Funaro. Reinhold Publishing Corp.

1, *from the south-west: clubroom on the right.*

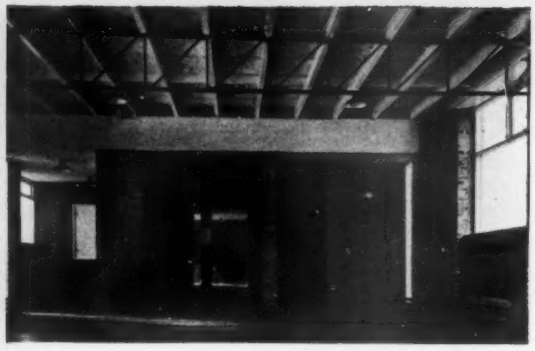
BOYS' CLUB AT STEPNEY, LONDON, E.1.

ARCHITECTS, YORKE, ROSENBERG AND MARDALL

ASSOCIATE-IN-CHARGE, T. R. EVANS. ASSISTANT ARCHITECT, D. ALLFORD

This club* for the Haileybury Guild, in Ben Jonson Street, near St. Dunstan's Church, replaces a smaller one on the same site which was bombed. Load-bearing brickwork is used throughout, and the roofs are of timber joists, wood-wool slabs and three-layer felt. The central two-storey section (the upper storey occupied by the manager's and caretaker's self-contained flats) has a reinforced concrete slab at first-floor level to take the partition walls which are not related to the ground floor partitions. The roof of the single-storey section is carried on welded steel trusses. The concrete beams at first-floor and roof level are 15 inches deep and are of Shap granite aggregate, polished with a carborundum disc. External brickwork is second hard London stocks; internally it is fair-faced and painted in certain areas. Partitions to the flats consist of concrete blocks, plastered. Floor finishes are quarry tiles in the entrance hall corridor and

* Illustrated as a preview in AR January 1955, page 60.



2, *detail of the main entrance.* 3, *the clubroom, looking west.*

Boys' Club at Stepney, E.1

changing rooms, woodblocks in the clubrooms, and concrete tiles elsewhere in the club and throughout the two flats. Windows generally have timber sub-frames with metal opening lights. Heating and hot water for the club is by gravity feed to radiators from a basement boiler using coke. Hot water is supplied to the flats from smokeless fuel grates with a back boiler.

The present building will be extended to provide an assembly hall with a stage, and a rifle range in the basement.

TECHNICAL COLLEGE AT GRAYS, ESSEX

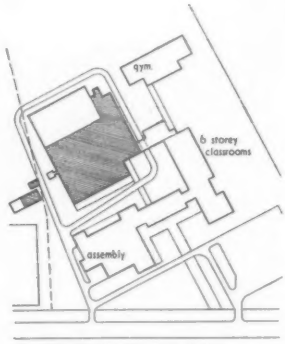
COUNTY ARCHITECT, H. CONOLLY

ASSISTANT ARCHITECT, N. P. ASTINS

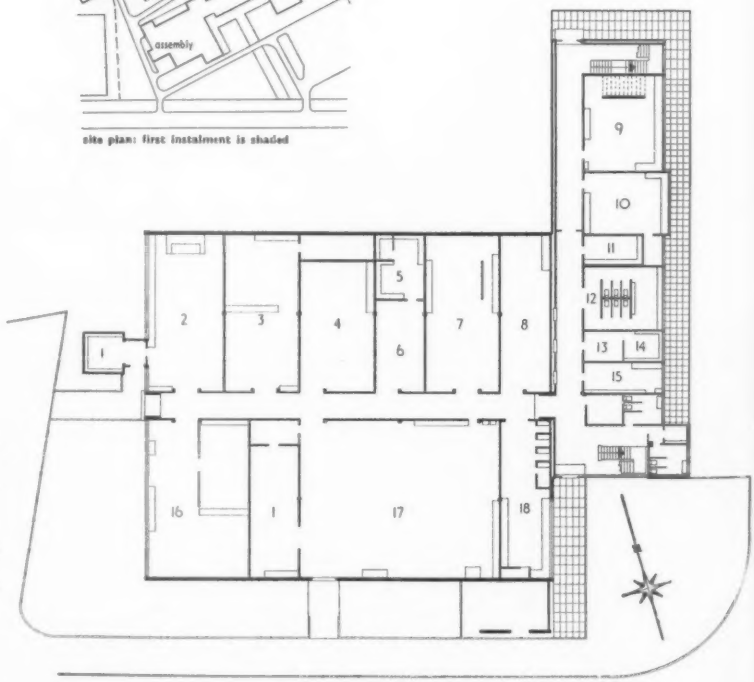
Opposite drawing, 4, top, workshops and offices from the south east. 5, centre left, boiler house. 6, centre right, detail of cladding and one monitor of the workshop block. 7, bottom left, main staircase. 8, bottom right, main entrance at the join of workshops and drawing offices.

This building is the first instalment of a regional technical college, north of the A.13 London—Tilbury road, and consists of a single-storeyed workshop block and a two-storeyed block containing administration and drawing offices. The workshops are of the monitor type and are steel-framed. Every other monitor is reversed, as in shops of restricted area this affords better overall lighting. Each is separately framed and rests on the main beams. The roof of woodwool slabs in metal tees is finished with a vermiculite screed and mineral-finished felt roofing. The external walls are of cavity brickwork with an inner skin of light-weight concrete blocks below the windows, and the same with an external cladding of western red cedar above; internal partitions are of fairface brickwork. Ceilings are sprayed white, the light concrete walls are plastered and painted to various neutral shades, and the corridor has small areas of brighter colours.

The two-storeyed block is also steel-framed, with a prestressed plank first-floor and its roof constructed and finished as for the single-storeyed building; the walls are either 11-inch brickwork, or metal windows with spandrels of light concrete blocks with cedar cladding. A heating chamber was designed as a separate above-ground structure, to facilitate future extensions; it is steel-framed, with brick and glazed walls and a prestressed plank roof. Heating is by means of a low-pressure steam, differential vacuum return installation, and by natural convector heaters. The lighting is chiefly fluorescent.



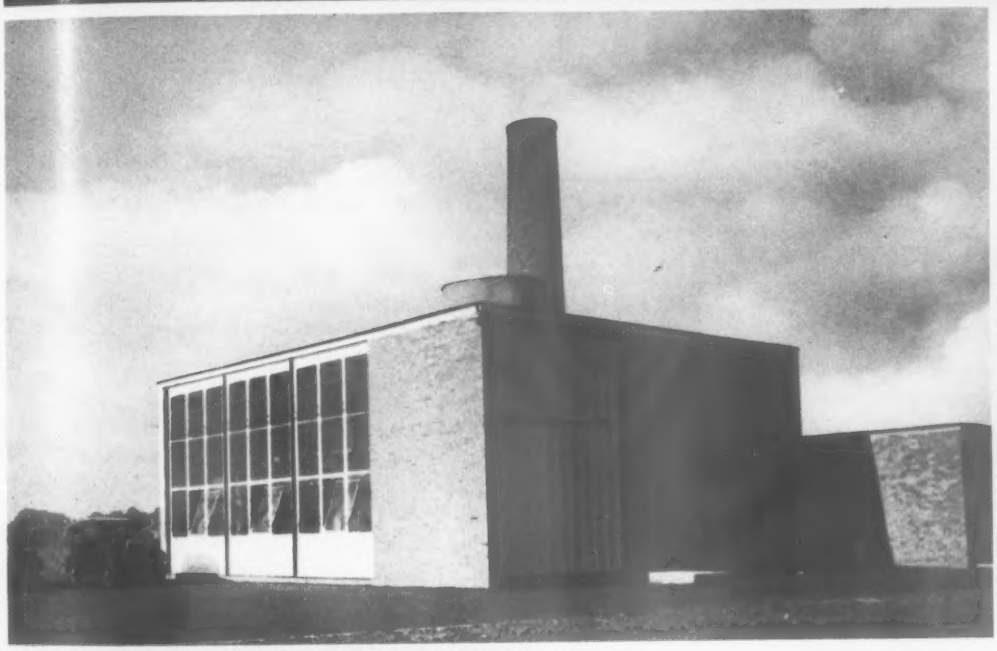
site plan: first instalment is shaded

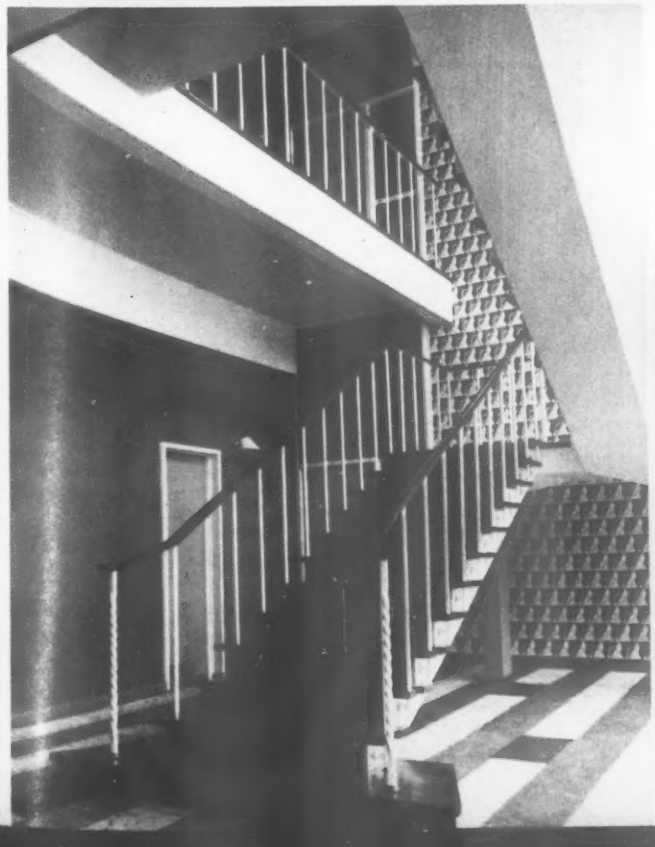


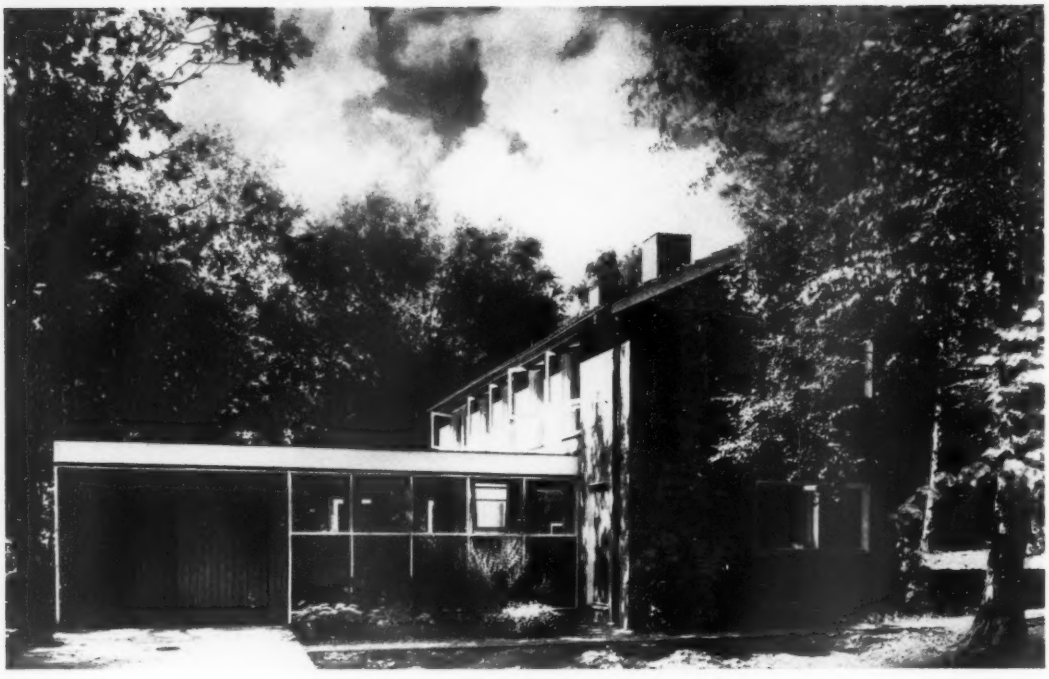
key
1. store.
2. engineering science.
3. applied mechanics.
4. strength of materials.
5. metallurgy.
6. heat treatment.
7. electrical engineering.
8. dining room.
9. electrical installation.
10. metrology.
11. switch room.
12. lavatories.
13. bookstall.
14. book store.
15. caretaker.
16. heat engines and hydraulics.
17. machines.
18. welding.

ground floor

10 0 10 20 30 40 50
scale of feet





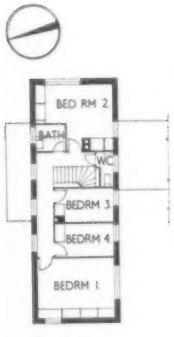


9

HOUSE AT WELWYN GARDEN CITY, HERTS.

ARCHITECTS, ARCHITECTS' CO-PARTNERSHIP

The house, in the Glade, Welwyn Garden City, is on a west-sloping, well-wooded site. The ground-floor accommodation is on two levels—the kitchen, dining area, playroom, entrance hall and garage on the upper and the living-room on the lower level. The dining and playrooms and the garage form a single-storeyed wing. External walls are of 11-inch cavity brickwork, with internal skins and partitions of 4-inch or 3-inch clinker blocks. The pitched roof has light timber trusses at about 6-foot centres, with interlocking tiles at a pitch of 22½ degrees. The flat roofs have roofing felt on wood-wool slabs, fixed to timber joists. External walls are faced with London stocks; floors in entrance, kitchen, dining, and children's rooms are finished with 9-inch-square handmade quarry tiles, and in the living room with beech strips, laid on battens in sand. In the single-storeyed wing, panels below the windows are resin-impregnated plywood, gaboon faced, and varnished. An anthracite-burning, automatic boiler serves the floor heating system.



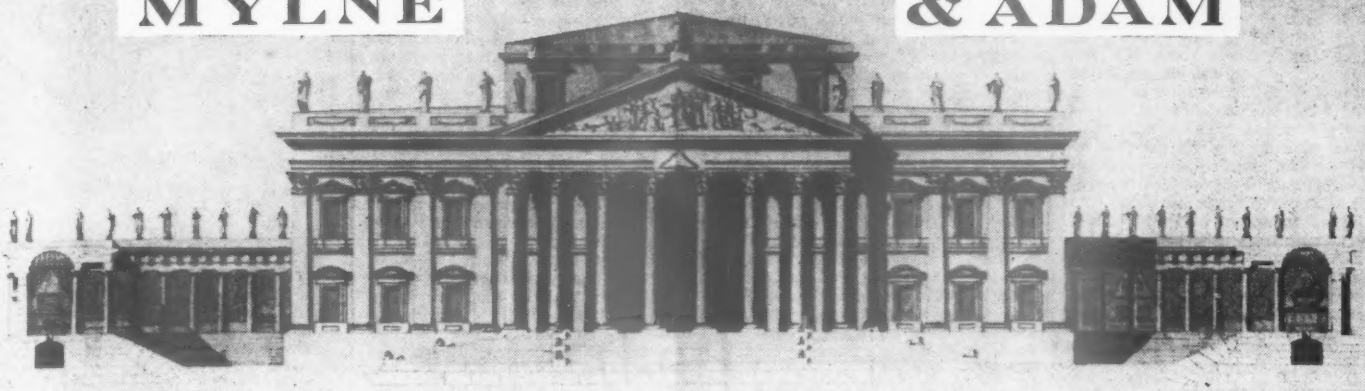
first floor

ground floor. scale: 1/32 in. = 1 ft.

9, south and west facades. 10, north facade with entrance porch.

10

MYLNE & ADAM



Christopher Gotch

Though he has been outshone by his older contemporaries Adam and Chambers, the work of Robert Mylne suggests that he should claim a bigger share of historical attention than has been awarded him. Christopher Gotch, in the article below, demonstrates that besides being the designer of Blackfriars Bridge, Mylne can also claim to be a pioneer of Neo-Classicism, as exemplified by his St. Luke's Academy medal design, above.

The monopoly of credit held by Robert Adam for the introduction of a style of decoration drawn from the vocabulary of Roman domestic and Etruscan design is beyond all question excessive. Adam possessed originality of a high order, but he did not know his limitations. He utilized his opportunities to start a fashion and, indeed, deserves full credit for his perspicacity, yet his very assiduousness in fostering this novel but flaccid design form hastened the passing of it.

Adam's strength, as well as his fame, lies in his devotion to 'filigrane toy-work,' as Chambers called it, to the exclusion of all else. Thus, to his own dismay he found himself regarded more as a decorator than an architect. Sir William Chambers is usually set against Adam, their work being contrasted in detail. These two architects are the tortoise and the hare of neo-classicism, the one a steady efficient bumbling conservative, busily waving a red flag of chinoiserie in order to divert attention from his reaction to the slick salesmanship of the other. Mr. Summerson[1] states that 'Chambers was to be Robert Adam's chief contemporary and rival in England. His career and Adam's . . . were in many respects remarkably similar.'

Such as this may be—and I submit that it was superficial in fact—the similarity between Adam and Robert Mylne provides a far more remarkable parallel. Mr. Summerson, it is true, mentions Mylne: in such a way, though, as to indicate his position as a poor third to Adam and Chambers. One basis for this assertion is that the first two travelled abroad as gentlemen rather than as students and that their studies 'ranged over renaissance as well as antique work and were strongly influenced by contemporary France,' whereas Mylne 'was, in fact, a more or less inexperienced student and attempted, so far as we know, no schemes of discovery or archæological publication.'

Now only five years in age separated Mylne from Adam, and nine from Chambers, yet at the age of twenty neither Adam nor Chambers could boast the experience of Mylne. Before tracing this curious parallel between Adam and Mylne, I should like to suggest that in Mylne can be found the nearest example of the pure neo-classic architect who practised in Britain. In Mylne, moreover, were present the opposing traits of both Adam and Chambers in addition to which was an engineering ability of great quality. Neither this nor his worth as an architect has hitherto emerged sufficiently.

Robert Adam and Robert Mylne, each the second son, were born in 1728 and 1733 respectively, and each was educated at Edinburgh High School, the one leaving in 1742, when the other was arriving. Adam spent the next five years at Edinburgh University, but nothing is known of his studies there nor of what he did after he left in 1748. In that year his father died suddenly, leaving the practice in the care of John Adam, who presumably had Robert to help him. One of the first known drawings by Adam is dated 1750, although Mr. Colvin refers to sketches done at the age of fourteen.[2]

Does this supposed first sketch, of the cross at Winchester, indicate that Adam travelled into England during these years? What was he doing with these vital years? Where did he learn his profession? In his brother's office? Had he already assumed leadership of the family and had he decided to move the practice to London? If so, was this decision the cause of the subsequent Grand Tour? It is this gap in our knowledge of Adam which stands him in such good stead, for it is so easy to credit him with a precocity that was in fact lacking.

Mylne, on the other hand, had been apprenticed on leaving school in 1747 to Daniel Wright, a mason like his father, one supposes; for by 1753 and all the following year he worked as carver at Blair Atholl under Abraham Swan, a carpenter and joiner who published several books of architectural design.[3] Mylne had the temerity to criticize Swan's design at Atholl in a letter to his father, which even allowing for his six years' experience is indicative of a fulsome self-confidence.

When Adam set off for Italy in the summer of 1754 he was followed closely by Mylne. Whereas Mylne lingered awhile in Paris, Adam journeyed straight to Nîmes, this being established from a sketch dated December 13, 1754. On this very date, Mylne was in Lyons having walked there from Paris. From Lyons he continued by boat to Marseilles. Both were in Rome by 1756. Adam had travelled overland by Genoa and Florence studying en route. Mylne had gone by sea to Civitavecchia arriving in Rome early in 1755, since when he had also been studying; for he felt that 'unless a man settles for some years under a master he cannot attain to any degree of merit.'[4] Indeed, he remained in Rome, except for several expeditions, until the spring of 1759—that is for over four years. At some unknown date he became a student at St. Luke's Academy, and in the autumn of 1758 carried off the silver medal for architecture with a design of an astonishingly neo-classical character obviously derived from France. This achievement led to his election as a Professor of the Academy, of which Adam had been made an ordinary member two years before.

We know that in Rome, even if they did not actually meet, Adam and Mylne knew of one another's presence. Mr. Summerson is corroborated as to Adam's mode of living there by Mylne himself, who records that '. . . he [Adam] makes a great figure here, keeping a coach and a couple of footmen.'[5] In June, 1756, Mylne toured the Naples area, presumably visiting the recent excavations at Herculaneum and Pompeii. There can be little doubt that he was as impressed as Adam must have been at the difference between Roman domestic and monumental decoration. (James Adam, on his later tour, was to write 'At Pompeii, I saw a room which seemed to have been painted with arabesques.'[6]) The following year, that is the year Adam left for Spalato, Mylne visited Tivoli, Porto Anzio (Antium), and Nettuno (Circium) and then Naples. From there via Paestum he went to Sicily. He spent several months on the island, as opposed to Adam's five hurried weeks at Spalato, collecting material for a book to be called *The Antiquities of Sicily*. He corrected the most recent map of the island, publishing his version in 1788. He had managed to find a backer-cum-publisher, while in Rome, and had even completed numerous drawings by the time he returned to England; but, unfortunately, the work occasioned by the success of the Blackfriars Bridge competition prevented him from finishing the book. Throughout his life it lay awaiting completion; every year Mylne's collection of Siciliana grew and every year he hoped to put the final touches to the book.[7] Whatever the ultimate cause, he had set out for Sicily that year with the same object in mind as had Adam when leaving for Spalato. Taormina, Girgenti, Syracuse, Segesta, Selinus, all the centres of the vanished civilization of the Greeks, the Romans and the Punic peoples he visited, made notes about and sketched. In a letter to his publisher he gave a list of the several temples that he wanted illustrated. 'Thus,' as Mr. Summerson writes of Adam and which is here so apposite to Mylne, 'Thus, he was both student and explorer at one and the same time collecting material and developing his capacity to use it.' True, Adam's labours at Spalato and the speed with which he turned it to good use were a tour de force calculated in its conception and brilliant in its execution; for by 1764 the results of his trip were published and provided invaluable advertisement. Yet Spalato itself yielded less from the decorative point of view than

[1] *Architecture in Britain*, 1530-1830 by John Summerson. Pelican History of Art, 1953.

[2] *A Biographical Dictionary of English Architects*, 1660-1840 by H. M. Colvin, John Murray, 1954.

[3] *Ibid.*

[4] *Mylne's Letters* by kind permission of Miss J. M. H. Mylne.

[5] *Ibid.*

[6] *Robert Adam and His Brothers.' Their Lives, Work and Influence* by John Swarbrick. B. T. Batsford, Ltd., 1916.

[7] "Mylne, the architect, has a fine collection of drawings made by himself in Sicily, and is hard at work about his travels there. (These still remain (1813) in MS in the possession of Mr. Mylne's son.)" Gough to Tyson, Jan. 1774. Nichols Lit. Anecdotes.

did the examples on the Italian mainland which were to prove so lucrative to Adam on his return to England.

Whilst exploring in Sicily, Mylne had met Winckelmann. The latter mentions the fact in his *Notes on Girgenti* (1762) paying tribute to Mylne's information about the site. In Rome, Piranesi was finding Mylne as convivial and promising as Adam. Now, Adam had worked with Piranesi on the Campus Martius, and their names were coupled on the inscription to the plan subsequently engraved. Piranesi extended a benevolent influence towards all those who bothered to search him out. Dance was to gain from this, just as Mylne and Adam had before him. Indeed, Mylne's association with Piranesi appears to have been personal to a degree of friendship, if one can read anything into the highblown phraseology used by the latter in his letter to Mylne congratulating him on his success over Blackfriars Bridge,[8] and by the fact that for many years Mylne kept Piranesi supplied with a variety of articles and information, as recorded in his diary accounts.

Adam's journey home took him back through the Rhineland, a route dictated by the Seven Years War, and one which Mylne was forced to follow a year later from the same cause. Mylne, however, tells us that on his way north through Italy, he spent some time inspecting Palladio's work and that from The Hague, he deliberately routed himself through Amsterdam 'with an intention to be well acquainted with the mechanical part of our trade. . . .'[9] This foresight, this early curiosity, was to result in Mylne's leadership of the engineering profession after participating in the affairs of no fewer than thirty-seven waterways—nearly a quarter of the total constructed. Both Adam and Mylne returned, not to Edinburgh, but to London, both equally determined to fulfil their respective ambitions by setting up practice there and using to the full the advantages gained by their travels.

Neither the first commission obtained by Adam, the Admiralty arch and screen in Whitehall, nor that by Mylne, Blackfriars Bridge, affects the issue here; it is when we come to consider Croome Park in Worcestershire, which Adam decorated from 1760–63 that the form of the fashion so soon to sweep over England really emerges. And what is there of Mylne's to set against this? The Mylne Diaries,[10] in which every action of his business and much of his private life, too, is recorded, stretch from 1762 up to shortly before his death. Only those years so vital to any establishment of Mylne's early decorative style are absent—that is 1760 and 1761. The first mention of such work is a library for Lord Morton at Chysick House in Brook Street, London, in the June of 1762. In addition, there is a possible clue in a cryptic entry for September 28, 1764, 'Saw Sir William Baker's.' This is a reference to Bayfordbury House near Hertford, built for Sir William Baker, an influential city merchant and, therefore, familiar with the Blackfriars Bridge project and its author, a house of Early Georgian character that was building from 1759–1762. Mylne returned from Italy in 1759. Considerable alteration to the house was carried out in 1809, but the staircase and upper hall are original and bear the stamp of a peculiarly light hand, much lighter, in fact, than is consistent with the external treatment of the house. Indeed, the contrast is startling, as startling as that of the Wyck at Richmond which is unquestionably the work of Mylne, the contrast being reversed, however, in this case.

So slender a lead is this, that we must consider the earliest confirmed interior work by Mylne if we want to prove that Adam was not wholly responsible for the introduction of the style that now bears his name.

Kings Weston which Mylne transformed internally for Edward Southwell exhibits an unusual amalgam of the old and the new styles. This work was done from 1763 forward and whereas the plaster work clings to the Burlington tradition except that it is divided into much smaller panels than normal, the fanlights and fireplaces show a surprising similarity to the later fashion. There is stronger evidence of Mylne's early use of this so-called Adam style at Halston Park in Shropshire. Close on the heels of Adam's alteration at Croome Park, in the following year, to be exact, the saloon at Halston was refashioned. Both ends of the room were formed into a bow, not apsidal such as Adam favoured, but creating an oval effect, reminiscent of the Wyck again; this time though with a fireplace in the centre of each bow and a doorway on the axis opposite to these. This doorway was flanked by fluted Ionic pilasters surmounted by a delicate overdoor. The effect of the decoration generally is one of restrained Adamesque. Furthermore, at Cally in Galloway, a strong resemblance to Mersham in the exterior is very apparent. Cally, built in 1764, possesses—now rather mutilated—an interior that has hitherto been attributed to Adam, but which is actually by Mylne. But to return to Mersham, it is interesting to learn that Mylne met Sir William Knatchbull in Rome and while there was making various sketches for Mersham. These were apparently discarded in favour of Adam's design in 1762, yet two years later Mylne was again preparing drawings for Mersham—this time for Sir Edward, uncle of the previous baronet who had died in 1763. Who, therefore, was plagiarizing whom? Mylne Adam, or Adam Mylne?

The success of Mylne's work at Halston Park resulted in his employment by several other Shropshire families, mostly those related to the Myltons of Halston. Indeed, he became so much the vogue that for twenty years he propagated the new style by creating interiors at Condover (1766), Tern Hall, later rebuilt and renamed Attingham (1769), Loton Park (1773), Sundorne Castle (1774), Little Berwick Hall, Combermere and Edgmond Rectory (1780), besides building new houses at Woodhouse (1774), Onslow Hall (1774) and Aston Hall (1780). Onslow was rebuilt in 1820, no trace remaining of Mylne's work; but Woodhouse and Aston are country mansions more akin to modest Mersham than to palatial Kedleston, yet the very restraint observed by their designer both without and within shows us Mylne, the architect, achieving exciting and unusual effects—such as the stair hall at Woodhouse—out of the simplest forms. The fireplaces and roof lanterns in these two houses are basically similar, although varied in shape, the former in particular having all the quality as well as originality of Adam's fireplaces, whilst that at Loton Park contains a frieze of ox skulls, paterae, swags and urns that has earned it the name of the Adam Fireplace!

At Sundorne (recently demolished), the decoration of the main suite has a Palladian flavour about its solid cornices and columns to which the frothy elegance of the ante room is curiously contrasted.

Thus Mylne constantly surprises by the breadth of his design vocabulary, coupling forms that were, in his day, both traditional and modern: and, as a consequence, confounding future analysis to such an extent that some of his work has been attributed to early eighteenth century architects and much more to Adam and Wyatt.

At Addington House, at Croydon, built by Mylne and decorated by him with the assistance of George Richardson, in 1772, there is revealed, in one remaining room at least, a full-blooded example of the Adam style; and of course, Mylne's superlative essay is still extant at Inveraray.[11] We are neglecting, though, the parallel between these two architects which, so marked in the early stages, now assumes a peculiar twist, caused by the rapid spread of Adam's fame as a decorator, a twist that discloses either society's awareness of Adam's limitations as an architect, as demonstrated by his shoddy work now being exposed at Kenwood, or its obliviousness to Mylne's full capabilities as an architect.

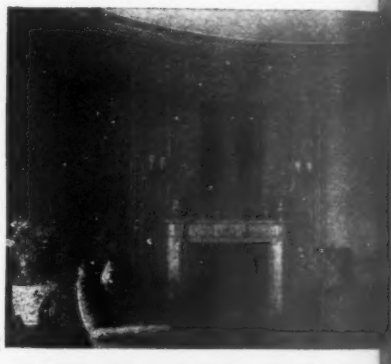
The Duke of Northumberland employed both men extensively, first at Northumberland House where Mylne carried out extensions and alterations in 1765, while Adam was accomplishing a miracle of lush beauty within Syon House. Five years later, Adam did the same within Mylne's shell at Northumberland House, and similar work at Alnwick Castle where Mylne was, in all probability, constructing the bridge. Around the time of Adam's death, Mylne was acting as the Duke's engineering consultant, and in 1802 he designed the shell and the interior of the Boating House at Syon, acknowledged by all who attribute it to Adam, or to Wyatt, as superb.

Then there is the paradox of Wormleybury and Hill Street. In 1766, Mylne rebuilt Wormleybury in its entirety for Sir Abraham Hume. Whether he executed the interior then, we shall never know,[12] for if Adam's drawings and the dates thereon are to be believed, he decorated the house, as it is to-day, in 1777; yet this very year Mylne executed alterations to Hume's London residence in Hill Street, Mayfair. Moreover, the elongated portico designed by Adam for Kenwood in 1767 is strangely similar to that by Mylne at Wormleybury, built the year previously. However, Mr. Summerson claims that Adam's portico at Shardeloes, built in 1761, was the first of this type.

Lord Eglinton, too, had alterations done at his town house by Mylne in 1766, and only three years later was employing Adam to provide a ceiling for it. Again, while the 5th Duke of Argyll was allowing Mylne full sway at Inveraray, his son Lord Frederick Campbell (6th Duke) had Adam working away at his house in Kent. The 6th Duke's son, in turn, reverted to Mylne as his designer!

Mylne's design for a building to house the Society of Arts in 1765 appears to have been abandoned in favour of Adam's in 1772. Finally, the Earl of Bute favoured Adam to such an extent that he had him build Luton Hoo as well as Highcliffe

1, *the stairwell at Bayfordbury*, 1759-62.



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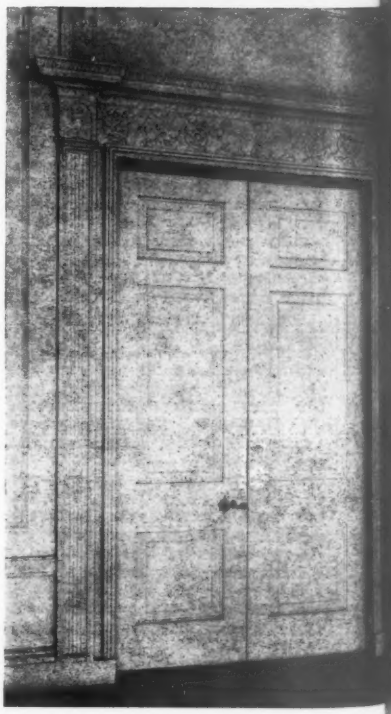


3

2, *one of the oval ends, and* 3, *a detail of one of the doors to the saloon at Halston, Salop*, 1764.

[8] The Missing Years of Robert Mylne, AR, Sept., 1951.

[9] *Mylne's letters, ibid.*

[10] *Mylne's Diaries* by kind permission of Miss J. M. H. Mylne.

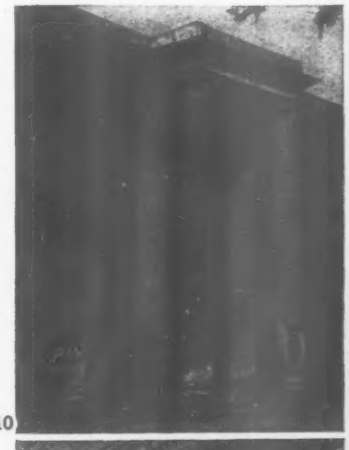
[11] *Country Life*, June 23, 1953.

[12] *Robert Mylne—Architect and Engineer*, 1733-1811. Introduction by Sir A. E. Richardson, PRA, FRIBA, Batsford, 1955, page 26. 'At Wormleybury . . . the internal decorations formerly attributed to Robert Adam, should be accepted as the work of Robert Mylne. . . .'

4, *Cally, Co. Kirkcudbright*, 1764.

9, *ceiling in Addington Palace, Surrey*, 1772.

5, *the portico of Wormleybury*, 1766.



10

11

6, *Aston Hall, Salop*, 1780.

12

13

Four views of Woodhouse, Salop, 1774: 10, *detail of the entrance portico*; 11, *bow window on the garden front*; 12, *hall, screen and main staircase*; *and* 13, *one of the fireplaces.*

7, *entrance side of Sundome Castle, Salop*, 1774.

8, *one of the interiors at Sundorne just before demolition.*

14, *Boating House at Syon*, 1802.

in Hampshire between 1768 and 1775. Ironically his son preferred Mylne, and employed him to look after and alter his properties at Petersham, Brompton, Highcliffe and Luton Hoo. Highcliffe had, by this time, been demolished (only three years after Adam's death) and Mylne was asked to survey the estate, presumably for sale purposes. Mylne's diary entry regarding Luton is self-explanatory. 'May 14th, 1802. Waited on Lord Bute at Brompton. Gave him on one sheet, a design for new modelling his present house and offices at Luton—to convert same into a tolerable dwelling!'

Both men were elected Fellows of the Royal Society and both were founder members of the Architects' Club: and it seems appropriate that for his last job of work, Mylne, then aged 78, surveyed Adam's Lansdowne House.

This curious parallel in two careers can be no coincidence. Somewhere lies an answer to the question, which one, Adam or Mylne, influenced the other most. Superficially the laurel goes to Adam, especially as he was the elder of the two, but as I have tried to show by comparison, there is plenty of room for doubt. Besides which a close study of Mylne's style reveals a delicacy and elegance far exceeding that of Chambers and a virility more akin to Vanbrugh, in its sense of movement, than to Adam. Mylne's style is inconsistent, however, so much so as to render analysis almost impossible. Influences from Burlington and Adam are there clearly to be seen, and yet the resultant architecture may be proved penultimately to have sired the work of Dance and Soane, both of whom were well known to Mylne.[13] Dance, especially, was aware of Mylne's powerful personality and no less powerful influence; for, as City Clerk of Works, he obtained Mylne's appointment as chief of a group of engineers on the various projects to develop the several docks along Thameside.

There is no doubt that in his own lifetime, Mylne was regarded as doyen of both the architectural and the engineering professions. Even more significant is Mylne's share in the metamorphosis that took place during the last quarter of the eighteenth century from the static Palladianism to the spatial concepts of Soane. Mylne was adept in dressing his progressive interiors in varying suits of moderation, deceptive in their simplicity. For all this, it is obvious that his changing moods were never obscure to his younger contemporaries and pupils who, with the exception of the Wyatts and other lesser architects, certainly rejected Adam's fulsomeness, and yet never courted Chambers. Thus it would seem that Mylne exerted an influence in his own lifetime as profound as any since that of Gibbs earlier in the century.

The best example of Mylne's contribution to this revolution is the group of buildings round the stable courtyard at Kings Weston where he dispensed with classical details altogether, whilst retaining the basic shapes and proportions of classicism.[14] Since this example was built in 1763, when Dance the Younger was still in Parma and Soane but a child of ten, there can be little doubt that Mylne's work provided the samplers that enabled Dance, and Soane after him, to experiment further, some forty and fifty years later.

[13] Dance told Farington that Mylne had given him his autobiography to read; while Soane, in a letter to Mylne's son, refers to the 'taste and genius of his late father.'

[14] *Country Life*, January 24, 1953.

POPULAR ART

ROCOCO PHARMACY

The Farmacia of the Carmelite Monastery of Santa Maria della Scala in Trastevere is the only one of its kind to have preserved intact the charm and grace of a Roman 'Spezieria' of the eighteenth century.

Until the unification of Italy it was only one of many which belonged to the religious orders or were old family businesses that had been handed down from father to son for many generations, and in some cases could trace their origins as far back as the sixteenth century.

Some relics of these ancient farmacei are still to be seen among the neon lights and chromium plate of modern Roman chemists' shops—finely worked chestnut counters and cupboards, ancient bronze pestles and mortars, marble urns, and beautiful majolica pots and flagons which held the essences and unguents of the herbalists' stock in trade. Many of these last were the products of the most famous potteries in Italy and are now exhibited among the ceramic collections of the national museums.

It is only at Santa Maria della Scala that these fascinating relics of old Rome can still be seen in daily use, for the Carmelite monks continue to prepare and to sell in large quantities their traditional remedies such as 'Acqua Antipestilenziale,' 'Acqua Antisterica,' 'Balsamo della Samaritana,' and a host of other decoctions and pills which are in great demand among the inhabitants of Trastevere and the older quarters of Rome.

The farmacia is reached by climbing a flight of stairs which leads from the monastery door in the Piazza della Scala into an open gallery facing upon the cloister garden. In this gallery hang two pictures of the school of Pier Leone Ghezzi, which represent Fra Basilio, a monk who lived from 1726 to 1804, and whose fame as a herbalist greatly contributed to the honour and renown of the farmacia. Fra Basilio was the inventor of the 'Acqua Antipestilenziale' and 'Acqua Antisterica.'

It is probable that the equipment and decoration of the farmacia as it exists to-day dates from the time of Fra Basilio, for he is known to have presided over it, and to have instructed the monks in the pharmaceutical art, for the last 50 years of the eighteenth century, and the frescoes and fittings undoubtedly date from that period. It is possible that some of the pestles and mortars and the magnificent marble urns, which served as recipients for the mysterious compounds known as Teriaca and Mitridato, may be of an earlier date, as there was an infirmary attached to the monastery practically from its foundation in 1597, and the archives of the monastery for 1694 include an inventory of the 'Spezieria' which show that by this time it was already extensive and well equipped.

Certainly some of the objects which are still to be seen in the farmacia were in use in Fra Basilio's day, for they are shown in the Ghezzi conversation piece which represents him instructing his pupils. These include a large marble urn for Teriaca surmounted by a pine cone, glass decanter-shaped bottles for holding 'Acqua Antipestilenziale,' and a curious collection of chemical salts worked in the form of crosses, medallions, obelisks, and leafy trees, evidently intended to serve as ex votos.

The farmacia consists of one large room with a coved ceiling, frescoed with garlands of flowers and a trompe l'œil design of brocade draperies; in its centre are the arms of the Carmelite Order. Although these frescoes have evidently been restored and retouched several times, it is probable that they were originally executed by an artist of the Ghezzi school, possibly the same man as was responsible for the two pictures of Fra Basilio. At one end of the ceiling, 1, a monk is portrayed peeping over

1

the painted draperies; this humorous touch is in style and character strongly reminiscent of the trompe l'œil frescoes which were executed by Ghezzi in the Villa Falconieri at Frascati. Although Ghezzi painted religious subjects in various Roman churches, he was chiefly known for his caricatures and representations of scenes from contemporary Roman life redolent of full-blooded humour, and the peeping monk is very much in character with his work in this genre.

The walls of the farmacia are lined with cupboards which in some cases have pilasters suggested by gilding and wooden beading; they are of a style which was common to farmacie all over Italy during the eighteenth century. One fine glass-fronted cabinet which is surmounted by a broken pediment is somewhat similar to one which is to be seen in the Chigi Villa at Ariccia.

This particular cabinet was evidently used to store the more valuable drugs, as it contains dozens of small glass jars and bottles, each balanced upon a gilded wooden baroque stand. These stands are joined together and attached to a narrow shelf. The glass jars themselves date from the latter half of the eighteenth century, one or two are of Italian manufacture, but the vast majority are foreign, probably of Bohemian origin. The only other Italian farmacia known to possess anything similar is that of the Ospedale degli Incurabili in Naples, where four glass-fronted recesses in the walls contain a complicated decoration of gilded baroque scroll-work, carved in wood, which forms a series of pedestals and stands for pots and bottles of glass from Bohemia and Murano. The decoration and fittings of the Farmacia of the Ospedale degli Incurabili is known to date approximately from the year 1748.

Adjoining the farmacia in the della Scala Monastery is the store-room in which the dried herbs and other medicaments are kept in cupboards specially designed for the purpose. Upon their shallow shelves repose scores of wooden boxes, each with a painted label denoting its contents. Boxes such as these were common to any Italian farmacia of the period, but what is unique in the farmacia della Scala is the fact that the cupboards, and, indeed, all the woodwork in the room even to the shutters, are decorated with portraits of famous personages in the history of medicine—Hippocrates, Galen, Avicenna, Mithridates and Mesue (the latter is portrayed wearing an elegant monocle). This portrait gallery is complemented by pictures of animals and plants which were particularly esteemed

2, eighteenth-century gilded wooden stand carrying glass jars and bottles. 3, roof frescoes of Farmacia; 4, chemical salts worked in shapes of crosses medallions, urns, obelisks, trees, etc., probably meant as ex votos. *5, same as 4, showing portrait of Victor Emanuel I, King of Sardinia. 6, cupboard of herb-boxes, with portrait of ex-Queen Marie José of Italy.*

2, 3

4

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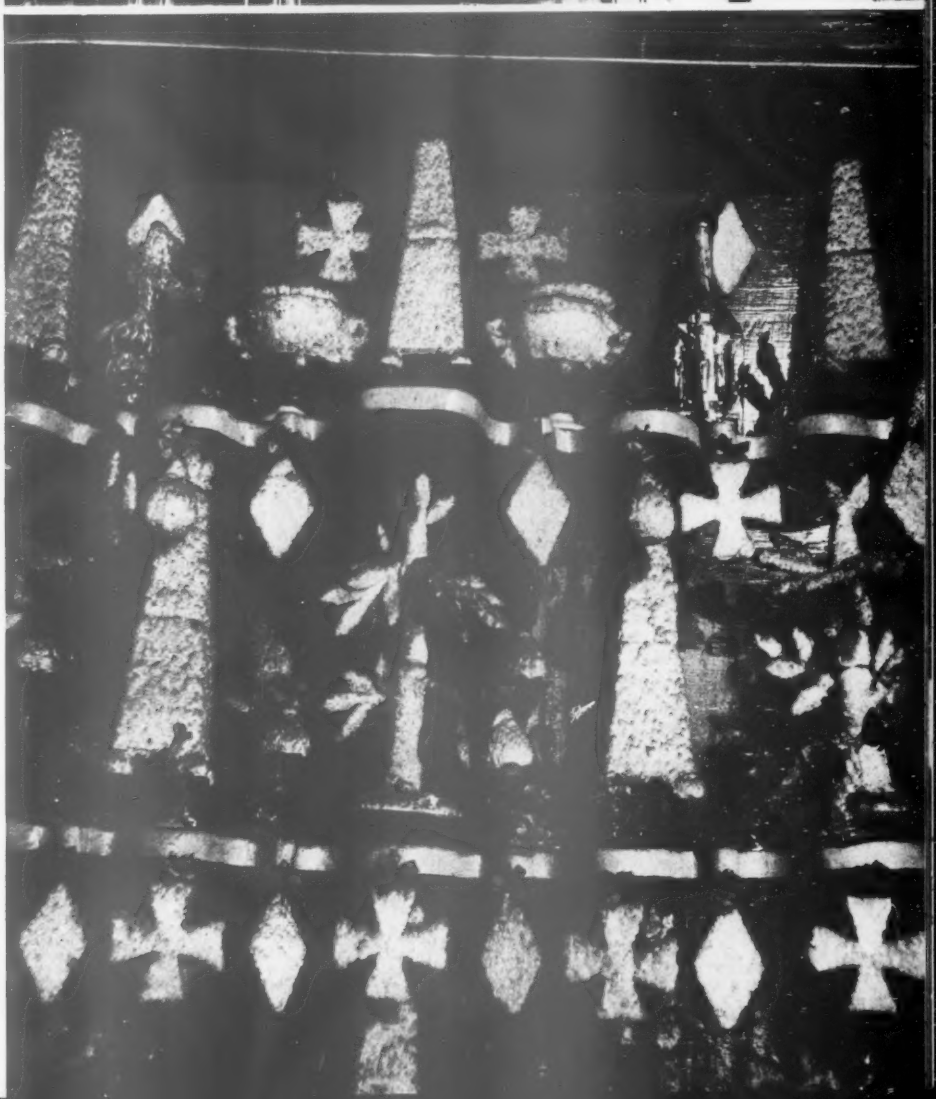
6



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RANUNCVLVS Triden
tatus seu trinitas - falda le
ferite, e sana le rotture inter
nali, presa in vino al peso di
una dramma polverizzata.
Durante Pag. 955

10

7, ceiling fresco, with medallion containing representations of medicine bottles; 8, glass-fronted cabinet for storage of valuable drugs (see Cover for detail); 9, modern jars for herbs and spices: **10-12**, *pages from Fra Basilio's herbal of* **1755**, *in which the samples are actual dried and pressed herbs.*

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12

for their use in the pharmacopeia of the eighteenth century.

The della Scala Farmacia had evidently acquired very considerable renown by the beginning of the last century, as it was visited in 1802 by Victor Emanuel I, King of Sardinia, and his wife, Maria Teresa of Austria d'Este. Subsequently it has been similarly honoured by succeeding generations of the House of Savoy, whose portraits, with those of Victor Emanuel and his Queen, have been painted upon the inside of the store-room cupboard doors.

The greatest treasure of the farmacia is, however, the wonderful Herbal, made in 1755, which is traditionally supposed to have been the work of Fra Basilio. Samples of the actual herbs, dried and pressed, are mounted upon its pages and decorated with figures, birds, and animals cut out of old prints. Upon the pages, opposite, the names and medicinal uses of the various herbs are written. The book contains examples of 230 varieties of plants, and is probably unique in Italy. **Georgina Masson**

TOWNSCAPE

THE PROMENADE, CHELTENHAM

If it is agreed that the Promenade, Cheltenham, is one of the finest streets in Britain can the reason for this be explained so that it might serve as a model? Probably not, because however simple it looks it is an amalgam of many things some of which, such as the architecture, can never be repeated. There is, however, one aspect of the street which can be jotted down in the Case Book. And that is the peculiar spaciousness of the place; an explanation of which is attempted here.

Consider the general view, 2, opposite, with the section below, 1. It will be seen that the street consists, basically, of

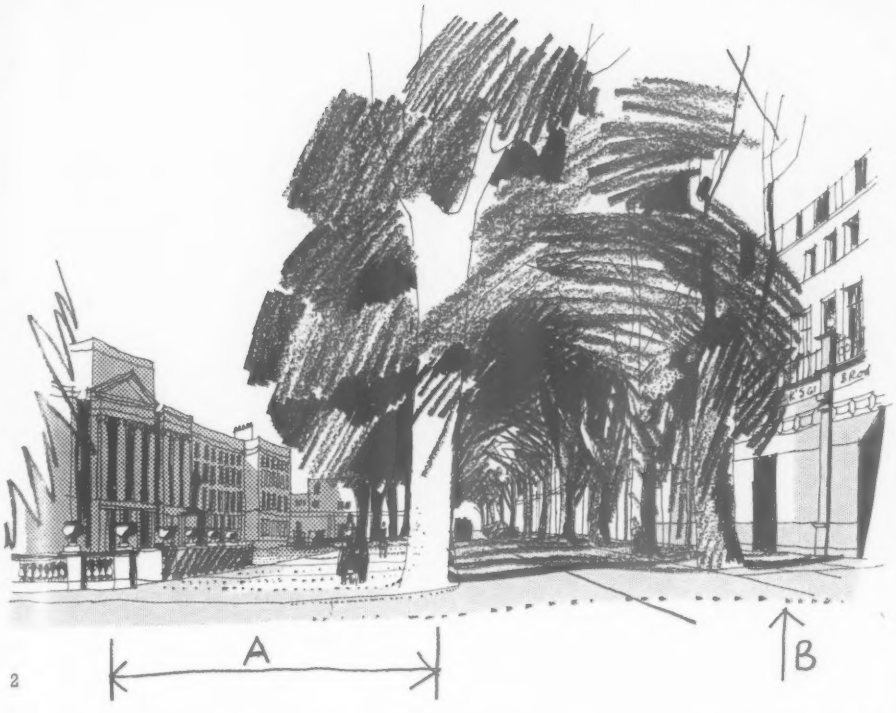
1

two enclosures. First there is the structural enclosure of buildings which forms a wide street and inside this is the second enclosure, or tunnel, formed by the avenue of trees (which screens out the ubiquitous sky thus heightening the sense of enclosure). The main traffic and pedestrian route is situated inside the tunnel so that one normally sees the whole street from inside the second enclosure which, naturally, is busy and concentrated. But the avenue of trees is not situated in the centre of the structural enclosure, it is emphatically to one side, to the side of the shops. This is made obvious and clear by the way the trees crowd right up to the buildings, at B, as compared to the articulating space, A, 1.

The effect of enclosure on a person, inter alia, is to identify him with his environment, it is a space in which he can say; 'I am now in the middle of IT', or, 'I am to one side of IT'.

But here, in the Promenade, there are two enclosures, 1, one inside the other and due to the lack of axial correspondence it is possible to look OUT of one enclosure (the tunnel) INTO the other (the clean, architectural enclosure).

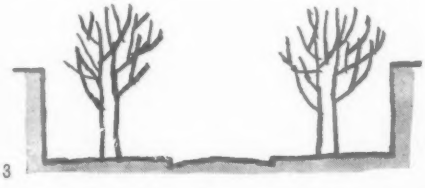
In this way a relationship is created out of the interplay of identities. For, due to the articulating space, A, there is a sort of visual undertow pulling the eye from the



2

local identity of tunnel to the larger identity. It is this which raises the layout from one of pleasant spaciousness to that of spatial tension.

It may help to clarify the point if we use the same elements in a different way, 3.


3

Here the magic has gone, for although we still have trees and buildings the drama of relationship is dissipated, and there is just one street.

Gordon Cullen

EXHIBITIONS

PAINTING AND SCULPTURE

The exhibition of Portuguese art at Burlington House was admirably displayed under the direction of Professor Reynaldo dos Santos, but there were not enough first-rate works at his disposal to enable him to maintain the atmosphere of majestic moderation which distinguished the first two rooms. Gallery I was given a kind of dramatic sobriety by a large fourteenth-century wood carving of Christ on the Cross, which created a thoroughly convincing impression of physical pain anæsthetized by grief. Gallery II was dominated by the fifteenth-century polyptych of The Veneration of St. Vincent by Nuno Gonçalves, an exquisitely balanced composition containing dazzling portraits of the young and the old, the rich and the poor. It is a masterpiece of courtly elegance and remote piety, and provided an unforgettable experience. But for the most part the massed ranks of ecclesiastical paintings and court portraits presented neutralized versions of Flemish and Spanish styles, and there was an over-all effect of talented routine work produced for undemanding patrons. In this boring atmosphere of dignified unoriginality, a few things that smacked of the macabre offered some relief: the best of these was the late fifteenth-century *Ecce Homo*, 1, which is painted without zest but, like the coiled rattlesnake in Mexican sculpture, would retain its iconographical kick even if it were the copy of a copy of a copy.

1

Neither landscape nor *genre* seems to have flourished in Portugal, and the provincialism of its painting and sculpture is without any trace of the naivety or sense of place that has saved the English school from dullness. The trouble with us is that we tend to overdo it, and when one of our painters of promise takes the line of least resistance and becomes willfully parochial we treat him as an heroic figure. Stanley Spencer is among the most formidable of our parochial cranks. He has forsaken the art of painting to become a master of the religious comic strip, and the retrospective exhibition of his paintings at the Tate Gallery and of his drawings at the Arts Council Gallery have put the official seal on his reputation as an English genius whose work 'transcends' art.

One or two early paintings suggest that he might have become a sensitive painter, and several early drawings—among them

2

Man Goeth to his Long Home, 2, made over forty years ago—show him to have been a fine visionary draughtsman. But in a typical painting of the later years, *The Coming of the Wise Men*, 3, dated 1940, execrable painting and inane drawing define a mock vision. As a comic reteller of bible stories with Cookham as the new Jerusalem, exploiting in the process a vein of erotic religiosity, he has no rival.

The very large sculpture called 'Internal

3

and External Forms,' 4, carved in elm wood, which was the centre-piece of Henry Moore's recent exhibition at the Leicester Galleries, is a full-scale reversion to biomorphic form and the notion of 'truth to material.' It is a remarkable work, but it belongs in spirit to the thirties, and much has happened since then, including Moore's own humanistic bronzes, to make it look decidedly dated. Whatever appeal it may have as form and image is obscured by the beauty of the wood grain, which arouses disconcerting associations with Heals' 'Craftsman's Corner,' and I cannot help feeling that this may well have been an appropriate occasion for covering the surface with pigment. In the same exhibition, the equally large bronze casting of a closely related 'Exterior Form' seemed much more modern in feeling. Although it was unaided by an interior figure, it was thoroughly extricated from the veil of 'nature's handiwork,' and sharply conveyed in naked sculptural terms the sense of an aching pod, which has successfully delivered an 'Internal Form'.

4

Michael Werner's development as a sculptor has been slow, but in his latest exhibition at the Beaux Arts Gallery his work has suddenly taken on a strange, melancholy force. His theme is the frailty and toughness of the human condition, and the appropriately ragged vitality of his modelling can be seen in this single figure, 5; but he makes more dynamic use of the armature in some of his groups. It is noticeable that even his statuettes look like maquettes for colossal bronzes, and I think that he would probably draw his best work from the impetus of a large-scale project.

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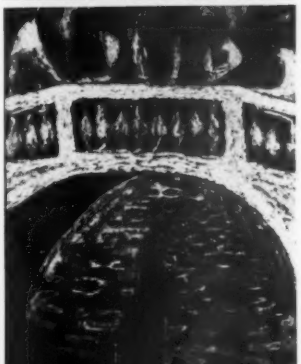

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Ruszkowski has been showing some paintings of Venice at Roland, Browse and Delbanco's, and has succeeded in taking that stare-proof old lady by surprise, for in one or two highly original, beautifully painted works he has managed to give shape value to the ripple of light playing on water and stone, 6. **Robert Melville**

LANDSCAPE

AN INTRODUCTION TO JAPANESE GARDENS

House and garden in Japan form a single aesthetic unit, the spreading verandahs of the house merging gradually into the garden and the architectural style of the house seeking to harmonise closely with the surrounding garden. So closely felt is this relationship that the Japanese word for 'home' is written with the two characters 'house' and 'garden' together. At first it was only the noble and the wealthy who could afford the luxury of a garden. This was laid out in the spacious and elaborate Chinese style, with a lake and islands as essential central features, and it served as a setting for the pageantry and pastimes of the Japanese aristocracy of the time. When the country was torn by civil war it was only in the Buddhist temples and the retreats of Buddhist hermits that cultural pursuits could still be carried on in peace and seclusion, and so the art of this age is to be found in temple gardens, a few of which remain to this day. They mainly follow the hilly, lake-and-island pattern of former days, which was perpetuated later in the gardens of the warrior aristocracy when the country began to settle down under a military dictatorship. But at the same time there appeared under the austere influence of Zen Buddhism an element of bold simplicity in garden design, characterized by a taste for smaller gardens on a flat plan, by the use of upright stones and the elimination of all but the barest essentials, so that the observer is left to build up from these a complete landscape according to his own individual imagination. The Flat Garden reached its culmination in the smooth raked sand, stark rockwork and absence of plants or trees of the celebrated Ryōanji Temple at Kyōto. Zen Buddhism led too, in its search for simplicity and solitude, to the development of the tea house, where a few friends would meet to drink tea, to discuss a painting or a choice piece of pottery and to enjoy the view of a quiet garden completely secluded from the workaday world. This garden, through which the tea-house must be approached, shuns all that is ornate and showy, it contents itself with a few evergreen trees and shrubs, a sparse scattering of stepping-stones and one or two stone lanterns and

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Japanese gardens

1–3, the garden of Ura-Senki (seventeenth-century)which contains two tea-houses, Yuin and Tottossai: 1, the stepping-stones in front of the Yuin tea-house, said to have been arranged to resemble scattered beans. 2, the paved walk of hewn stones from Yuin to Tottossai. 3, bamboo garden leading to Tottossai, with a sixteenth-century stone lantern behind. 4, at the Buddhist temple of Raigo-ji, built about 1600, a washing-basin modelled on the 'moon-viewing inkstone' preserved at the temple.

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stone washing-basins, the latter for the use of guests at the tea ceremony, but all must be chosen and arranged with the utmost care and discrimination, and the keynote is one of subdued good taste.

The book from which the accompanying illustrations are taken* deliberately avoids large-scale gardens and national show-pieces such as the Saihōji, Ryōanji and Katsura Palace gardens. Instead, it sets out to be a guide to the little-known but skilfully designed small gardens of Japan, most of them in private hands.

At the same time, the book aims to help the layman in the task of designing his own small garden and making it a real source of delight for his leisure hours. With this object, the author gives practical advice on how to arrange trees and rocks, stepping-stones, dividing fences, garden wells, washing basins and stone lanterns, and, most important of all, how to make the most effective use of limited space.

Clearly the Japanese garden must be appreciated from a totally different standpoint from the Western garden. It abhors the formal and symmetrical layout of gardens as practised in Europe; rules and canons undoubtedly exist, but all are designed as aids to an artful simplicity and fidelity to nature, and to avoid any suggestion of the intruding hand of man. Even though man-made stone ornaments are used, in the form of lanterns and washing-basins, it is those which are most worn and weatherbeaten and mellowed with age that are the most highly prized. The object in this, as in all Japanese gardening, is complete harmony with nature.

Trees, rocks and water are the three essential elements of the Japanese garden. It has little use for flowers or flowering shrubs. Colour is rarely introduced, except in the leaves of the maple which turn a russet-red in the autumn. Form and grouping are of far more importance, especially in the arrangement of stones. Here, perhaps, is the essence of Japanese garden-art. From earliest times stones and rocks have played a vital part in garden design. A garden can consist of stones and sand alone; without stones there can be no garden. Stones can suggest a whole landscape or can symbolize mountains, birds and beasts, with special literary associations for those versed in the Chinese and Japanese classics. In selecting them, by shape and size and texture, in placing them in relation to one another and to the garden as a whole, the Japanese gardener exercises his highest skill and art.

In the best of their gardens the Japanese find, like the Zen monks of old, not only peace of mind but a right view of the individual soul in relation to the world of nature and to the universe. **K. B. Gardner**

* *Japanese Gardens*, by Nishimura Tadashi.

11

Facing page, 5, 'garden of pleasure,' Shichijo, Kyoto City, built in the early seventeenth century; the arrangement of the rocks and pebbles in this so-called 'dry-landscape' is supposed to suggest a flowing stream. 6, the garden of Mr. Suzuki, Shijo Takakura, Kyoto. 7, side passage in the garden of Mr. Imanishi, Fukuchiin-cho, Nara City. 8, the Isuien garden, Nara, built in 1897; the millstones serve as a causeway to an island in the lake. 9, ornamental garden well in the Warajiya garden, Shichijo, Kyoto. 10, the courtyard of Wachusan, at Umeno-ki, Shiga Prefecture, formerly a prosperous inn. 11, above, the garden of Juryo-in, Kami-Sakamoto, Shiga, a private residence of Buddhist abbots, built in the seventeenth century; note, in the pond, the stone representation of a boat.

BOOKS

BUILDING WITH PASSION

ARCHITETTURA ITALIANA OGGI: ITALY'S ARCHITECTURE TODAY. *By Carlo Pagani.* (*Hoepli* £3.3.0.)

This book contains nearly 500 photographs of some hundred current Italian buildings, together with plans and notes on the technical and æsthetic aspects of each job. The work shown, while wholly 'modern' is chosen on a catholic basis. Flats, houses, office buildings, factories, hotels, schools, etc., are all represented. Format and typography are of the high standard one associates with the publications of Hoepli. The text is in Italian and English, although the translation is poor. There is a brief foreword by Richard Neutra in bad American.

On the whole Carlo Pagani has given us just the book we wanted. The English architect was badly in need of some sort of guide that would enable him to see the wood as well as the trees. The post-war renaissance of Italian architecture has now become, it must be recognized, one of the most curious phenomena of our time. Defeat in war is always a stimulus—'challenge and response'—but in the case of Italy there must be added two other very potent factors: one, the violent reaction against the aggressive rhetoric of Fascist building, and two, high traditions of craftsmanship and material. It is the combination of all these things that has made Italy, architecturally speaking, the most fascinating country in the world . . . that and the fact that through it all she retains obstinately the beautiful sensual swagger of Latinism. To visit Milan at the moment, or even Rome if one penetrates to the more expensive or more industrialized suburbs, is to feel somehow that one is living in one of those pages of the history book where man's overriding interest was in building. Not all the work is good, but very little of it is very bad, and there is no shadow of doubt that the Italian passion at the moment, as in the third and the fifteenth centuries, is structure.

Pagani is not only catholic in his choice of subject matter; he is fair minded and objective. While condemning Fascist building, his condemnation is not wholesale; it springs from genuine distaste rather than from political prejudice; this is proved by his dating the present renaissance from Terragni's clear, rational design for the Fascist Headquarters in Como (1932), from the pure lines of the railway station in Florence (1936), or from Ridolfi's 1936 flats in Rome. Otherwise Pagani's preliminary survey, in his preface, of Italy's pre-war contribution is inevitably rather thin. It serves mainly to emphasize both the quantity and quality of the later work that is the main theme of the book. It was with post-war reconstruction, with UNRRA-CASA and the Government's INA-CASA Fanfari plan that the present era really began. Some of us, indeed, would feel that there was an even more symbolic moment; at the 1951 Milan Triennale two exhibits, side by side, 'The Form of the Useful' and 'Divine Proportion,' showed how firmly Italy was grasping both ends of that stick that we call the 'Modern Movement.'

Turning over the pages of this book one realizes many things. The intense sophistication, for instance, of a small holiday home by Calderara and Varisco, is followed by another on the next page, Gardella, in the purest farmhouse tradition . . . all the more extraordinary when one recalls the sophistication of Gardella's own work in Milan. Is it not, incidentally, this intense sophistication, this intense sense of form—as opposed to mere professional slickness—that makes the best 'Bay Region' work look comparatively brash? Again and again, too, one realizes that the true blending of the functional and æsthetic is, in the ultimate product, purely sculptural. This is not only true of such *jeux d'esprit* as, say, a diving board—with obvious sculptural opportunities—but equally true of many great blocks of flats, where balconies, plain surfaces and crisp, detached structural frame are all not merely arranged but synthesized into a single sculptural whole. Of course materials, craftsmanship, sunlight

are all enormous assets, essential ingredients; but they are all assets that are today consciously exploited, not taken for granted. That exploitation is in itself one symptom of the eternal artist in the Italian; the other is his comprehension of plastic and sensual form. All these things have in the last ten years added up—as Pagani's book shows—to an architecture of immense importance, more significant and more enduring, in the long run, than that of Scandinavia or the USA.

In this passion for building—and it is at the moment a real, consuming, Latin passion—there is a danger. Things move quickly anyway in the modern world; technically and socially they are in Italy now moving too quickly for the artist. There is no time for consolidation. Buildings, almost before they are finished—the scintillating new Olivetti offices for instance—are hastily dismissed as the last of their kind—as the inevitable cliché . . . and one is hurried on to something else. The lush, expensive Roman suburb of Parioli is a series of brilliant but detached experiments. All this is the price one does pay for a consuming passion. Yet without that passion, while there has often been sound building, there has never been great architecture. In Pagani's survey, while there may not be very much great architecture, the basis and the ingredients are all there.

R. Furneaux Jordan

ROSE-RED CITADEL

THE MOSCOW KREMLIN, ITS HISTORY, ARCHITECTURE AND ART TREASURES. *By Arthur Voyce. Thames and Hudson, 63s.*

As you drive down Frunze Street towards the Moscow River you see at first, at the end of the street beyond the river, only a collection of undistinguished buildings of which the most notable is the Victorian-Italianate palazzo that now houses the British Embassy. But soon, as the street turns and widens, there slides into view from the left a tall, thin, circular tower in red brick, roofed with green glazed tiles. This is shortly followed by another tower, this one square and composed of a diminishing series of flat boxes, crowned with a pointed spire. In a few moments, if you are on your way to the Embassy, you find yourself crossing the Stone Bridge and will see to your left the most extraordinary and one of the most beautiful urban views in Europe. Rose-red battlemented walls, interrupted at irregular intervals by irregularly designed rose-red and green towers, enclose a low plateau surmounted by a rather improbable collection of buildings; some lumpish nineteenth-century palaces, yellow and white with copper-green roofs, several little white-walled provincial-Byzantine churches with gold and aluminium domes, a great awkward white tower topped by a blazing gold onion and, over the far corner, the extraordinary turbans, turnips and pineapples of the Church of Basil Blazhennyi, newly repainted in vermilion, chalk-white, sage green and saffron.

The visual effect of this triumph of Sharawaggi, this 'Caesaropapist fantasia' as Robert Byron described it, is much enhanced by the reflection that it is no dead monument, like the Acropolis or the Capitol, but that, like the Vatican, which of all European architectural complexes it most resembles, it houses, however incongruously, the living centre of a would-be universalist faith. The Great Palace contains the parliament of this faith, and well back behind the little churches is the low classical building where its leaders have their offices.

This view from the Stone Bridge is described by Mr. Arthur Voyce, author of the latest book on the Kremlin, as 'the most striking'. But he confuses the issue by saying that the side facing the Moscow River, which is all that is really visible from the Stone Bridge, is 'not of essential importance in establishing the picturesqueness of the Kremlin' (whatever that may mean). This confusion of thought is, unfortunately, typical of Mr. Voyce's book, a confusion which occasionally slops over with downright inaccuracy. This inaccuracy sometimes takes the form of plain errors, as when he situates Suzdal on the Volga, and at other times proceeds from an obvious unfamiliarity with the present state of affairs in Moscow, as when he includes the Spas na Boru and the Red Staircase among existing buildings or says that the ramparts 'now . . . form a pleasant walk around the Kremlin and, at some points, reveal a breathtaking view of the city across the river'. The confusion extends to the arrangement of the book, which twice lists the illustrations and plans but both times without page references, and is most strikingly apparent in the chapter entitled 'Art Treasures' which is as conspicuous for its repetitions as for its omissions.

These defects are all the more regrettable since this is the only recent book in English to deal *in extenso* with the history, construction and contents of the Kremlin and since it contains some useful information and reproduces many valuable plans and sections of Kremlin buildings from Russian publications that are not easily available.

William Hayter

LEIPZIG MEN AND HOUSES

LEIPZIGER BAUTRADITION. *By E. Müller, H. Kühn, K. Steinmüller, H. Füssler, H. Bathe, A. Franke and P. M. Zahn. Bibliographisches Institut, Leipzig 1955.*

We don't get many books from behind the Iron Curtain and especially from East Germany. Scholars, we are told, still keep in touch with the West; but we see little of that, and communications with England often go by way of a West German middleman. This book, written by eight authors, and presenting an architectural history of a town nearly the size of Birmingham and, at least in the past, many times the cultural importance of Birmingham, is a reassuring example of book-production and book-writing in the east. The paper, it is true, is a little flimsy, but the writing is neither flimsy nor more than very occasionally forced into the party-line—unless one calls it unjustly the party-line that nearly half the book is social history and only the rest architectural history strictly speaking. Personally I welcome this proportion. Having many years ago written myself a book on the architectural history of Leipzig during one period, and having totally neglected that aspect for the sake of analysis and comparisons of style, I find it particularly gratifying to read who the men were who could afford to build terrace houses in the main streets of Leipzig, eleven windows wide and four storeys high, plus two or three in the roof, how these men got their money, how they used the houses partly to let apartments, and partly for the purposes of the Leipzig Fair, and so on. A house of the size just referred to would cost nearly 60,000 Taler; rents in such a house for a front flat of about eight rooms on the first, second or third floor were between 300 and 500 Taler annually. The same bankers and merchants who built these town houses built gardens and summer-houses outside the walls. In one of them the first coffee tree flourished at Leipzig in 1723, another was landscaped *à l'anglais* as early as 1770–1. Leipzig in fact in the eighteenth century, the time of Bach, Gottsched and later of Goethe's university years was a town of far greater power and importance than now. The book brings this out well and is reliable on the details of architectural development. Only the reference to van Campen on page 96 must have gone wrong. Is perhaps de Keyser meant? As in most Continental books the Victorian age is treated inadequately and unsympathetically.

Nikolaus Pevsner

FURNITURE PRIMER

ENGLISH FURNITURE AT A GLANCE. *By Barbara Jones. Architectural Press. 8s. 6d.*

This book is useful to the person who wants to begin a study of furniture. The text is profusely illustrated with neat little drawings which the author has made herself. In a book which is called *Furniture at a Glance* one would have thought the illustrations were more important than the text: the text, however, does not merely amplify the illustrations—on the contrary, it expresses a number of opinions which have little to do with furniture recognition. It would perhaps have been better if the author had not declared so emphatically her dislike of certain styles of furniture (in particular the Elizabethan) for the student is not so much interested in a writer's personal opinion of what is good or bad as in learning something he or she does not know.

The real value of this little guide is, however, to be found in the last five sections, which deal with furniture from 1830 to 1920. Here the author does give the student interesting information. For instance, about the young engineer Robert Mallet whose furniture designs were illustrated in Loudon's *Encyclopædia*. This part of the book displays a first-hand knowledge and is a real contribution to the subject, though many readers may not be captivated by the 'great beauty' that the author considers exists in the late nineteenth-century furniture designs of Charles Rennie Macintosh. A noteworthy feature of the book is the glossary, which gives brief explanations of all terms connected with furniture and furniture making. This has been carefully written and should undoubtedly be of use to beginners.

R. W. Symonds

SKILL

A MONTHLY REVIEW
OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

1 *interiors*
2 *design review*
3 *techniques*
4 *the industry*

1 INTERIORS

SHIP INTERIORS

by Ian McCallum

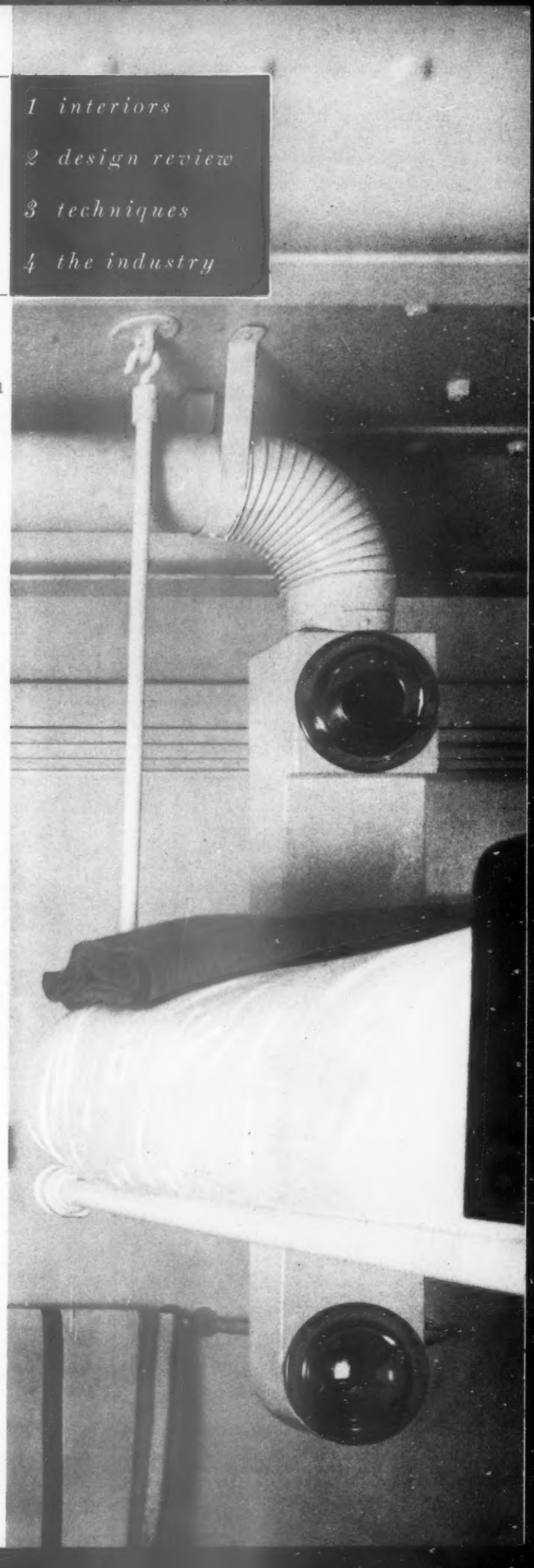
The old cry constantly repeated by those who care about design when faced with the interior of a luxury liner is not that the ship is spoilt for a ha'porth of tar, but that it is spoilt by a thousand barrels worth, in the form of satins and silks and Empire wood and the kind of taste that might be called popular, if anyone really liked it.

Why, ask the highbrows, given a forceful, characteristic and entirely successful nautical style outside, does a ship have to have the worst kind of Grand Hotel style inside? Is it beyond all ingenuity to adapt and develop the nautical style, to provide

2

interiors that are not such resounding anachronisms?

Most shipowners reply that the Grand Hotel is what their customers require and the one thing they don't want is to be



1

Is there a nautical indoor style? This detail from a cabin on the P & O liner Strathmore, 1, *suggests that there could be: ventilation, suspension, ship construction are expressed simply, even primitively, and though the bare bones may not always be acceptable there are formal implications here, denied in most ship interiors today, that start the imagination roaming. The* Kenilworth Castle, 1904, 2, *is another matter; this is clearly just the nautical outdoor style brought in, and satisfying enough—to the purist, but shipowners have to cater for other types too.*

reminded, however subtly or ingeniously, that they're at sea.

So the Grand Hotel is what they get, differing, of course, according to the routes taken and the type of passengers carried. From bare, clean and pretty Danish, through vigorous and boldly coloured American; lush, chic, Italian; hectically gai French; to worthily, and sometimes imaginatively, modern British. That is at the top of the scale—design-wise—to use a transatlantic term. Design-wise, however, is not what most transatlantic liners are, at least not from the highbrow viewpoint. It is among these, where competition is fiercest and the rewards highest, that the worst excesses are committed.

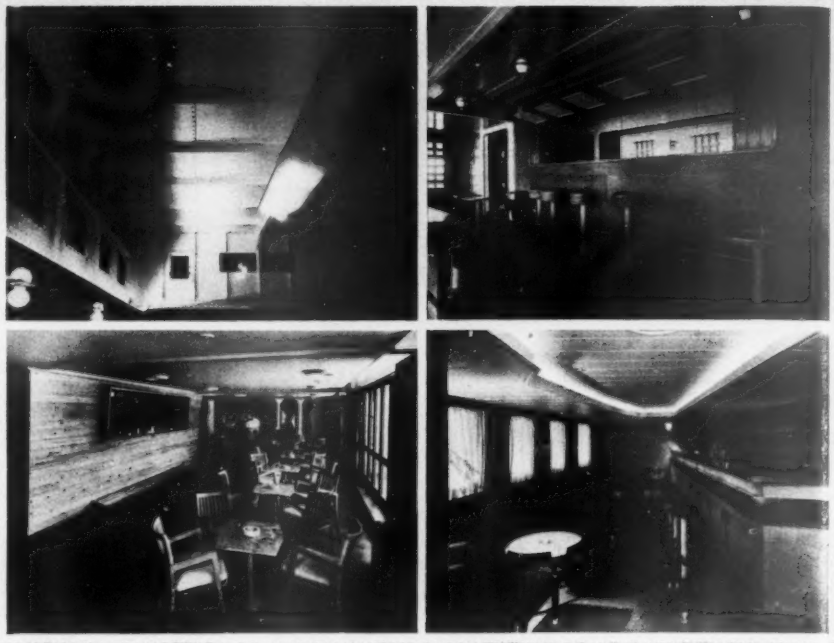
There have been a number of phases of this anti-nautical style, most of them following fairly closely the styles of the more expensive hotels.*

A constant and particularly obnoxious influence, due to the extreme cosmopolitanism of the passenger lists, is national and imperial propaganda. Since these liners constitute a permanent floating exhibition in which the passenger is imprisoned for varying lengths of time, it is neither possible nor necessary to resist the temptation to wave the flag. On such occasions, however, the conspicuous position of the flag-waver makes it vitally important that he should stand up to inspection—an over-dressed vulgarian would clearly be miscast for the role. But this is what these liners are, judged as examples of the best their countries can do in the decorative arts. Granted the craftsmanship is near faultless, the ship a masterpiece of engineering, the navigation and service impeccable, the decoration is, as a rule, untouched by any acknowledged master of the art and the paintings, sculpture and tapestries are nearly all by artists whose existence has hitherto gone un-

* One digression was the museum phase, during which famous rooms on land were dismantled and adapted for a life on shipboard or else were copied as near as the technical exigencies would allow. (See also postscript p. 140.)

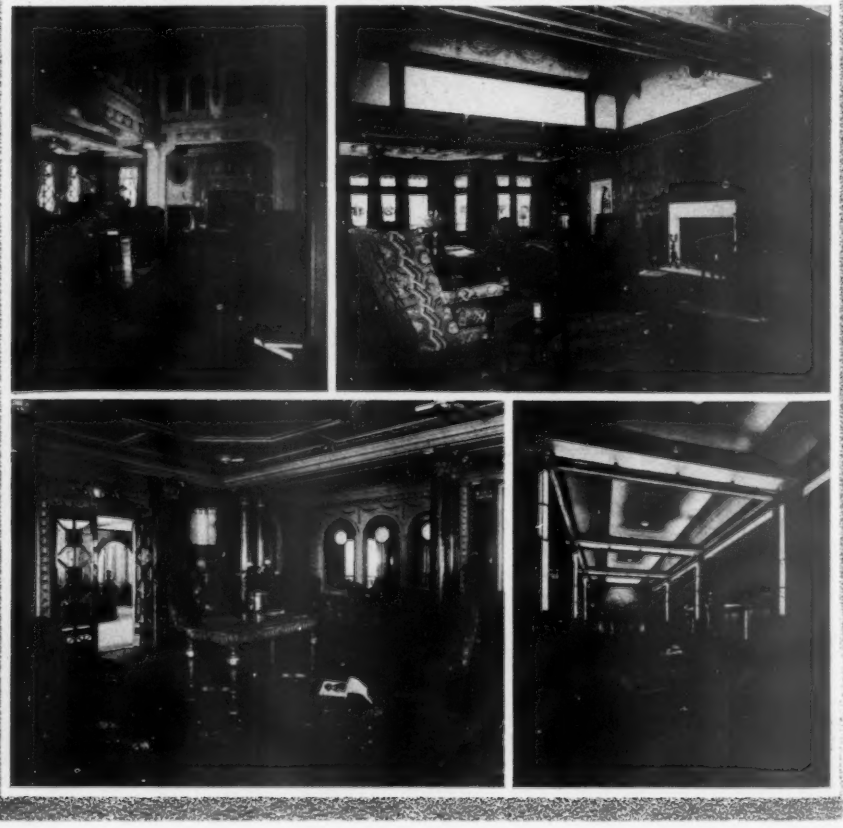
3, *the* Carnarvon Castle, *an unfortunately typical example of the veneer craze—four different woods used in one small cabin, all highly polished and reflecting like a wet street.*

nautical



Though the nautical style may be too 'bare bones' for all the rooms in a ship, there is still at least one line that pays homage to it from time to time. 4 and 5 are both the Orient Line's Orion, 1935, *and 6 is in the same line's* Oronsay, 1950. *The latter pays homage more by implication than directly, but the parentage is still there, clean, raked lines, neat, trim, unvarnished wood. 7 has moved a good deal further down the family tree and gathered quite a 'bit of brass' on the way, without, however, forgetting its vigorous forbears. And this is really the moral of the story—a sense of the nautical traditions is what really counts inside ships, much more than a superficial carrying inside of outside motifs. Note in 7 (tourist bar in the* Cristoforo Colombo) *the traditional proportion of the upper-deck ship's window (the same as in 2, preceding page), left visible by keeping the curtains inside the reveal. If there is little sign here of attempting a new formal language as suggested by 1, on the preceding page, it does show that the functional tradition, which is really what it comes to and of which the nautical tradition is a branch (see AR, January, 1950), can now embrace luxury without denying itself. This puts the lie once and for all to the argument illustrated by 8, 9, 10 and 11, below, which says, virtually, that fancy-dress, whether Mooresque, Tudor-bethan, Holkhampocum or modernistic, is the only way to satisfy the insatiable appetite of the sea voyager for luxury and a sense of security.*

anti-nautical



observed by reputable critics. Add to this the propaganda theme which encourages the lavish use of exotic veneers in homage to the fecund vegetation of the Empire (not to mention the only too well varied output of the home country's textile mills), and an effect is produced beyond praise, but also beyond blame.

Why beyond blame? Because there are few who can think of any alternative. The purist may admire the unadorned, ship's carpenter interior of the windjammer, yacht or cabin cruiser, but the realities of the situation clearly rule this out as a liner style, its very essence being sturdy simplicity and its character the result of ingenious solutions to minimum spaces.

12, *the Grand Saloon of the* Great Eastern, 1858.

The first of the big liners, the *Great Eastern*, is no help for, charming as its interiors were, the style was a Victorian decorator's style, charming because the style was charming, showing as it still did its Regency parentage. Modern architects are sometimes used, and the only successes on British lines have been due to them, but where lavish decoration is wanted they have a serious drawback. The modern movement in abjuring decoration in its pioneer phase, and in its disapproval of the very idea of luxury, has given its adherents a guilt complex the size of the *Queen Mary* about touching such things, and an extraordinarily limited vocabulary when they do.

One would have thought the shipowners might have looked to the top-line decorators to help them. They could have called, for instance, on Syrie Maugham, Kelso, Colefax and Fowler, Lehmann and so on. They would have had their luxury—they would also have had a certain style, using the word in its non-historical sense, though they would have had a certain amount of the other kind, too.

But no, where they would stand for nothing second-rate in engineering, navigation, craftsmanship and service, the

congregating

an interior which looks as if the mice had been at it

13

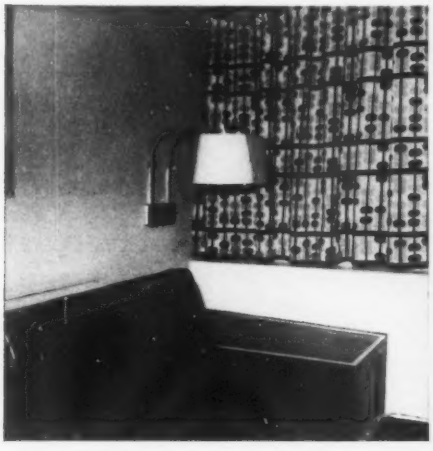
an interior that allows people to play the active part

14

It is hard to discover what principles of design were followed in 13, *the Chintz Lounge in the Cunard Line's* Saxonia, 1954. *Certainly its jagged geometry is unlikely to do credit to British prestige in design, and though it may satisfy the traveller's desire for a sense of luxury, it cannot possibly be said to contribute to his sense of security. Even when quite still the effect is sinister, as if a dozen 'big brothers' were watching, and at the idea of a swell the mind boggles. It would seem to be self-evident that where a number of people move and congregate, the background should be what its name suggests. This does not rule out pattern, texture, colour and ornament whether in the form of sculpture murals, tapestry or, as in the liner* United States, 1951, 14, *etched glass. But where these are exploited, as they so ably are in the* United States, *they must take their place as part of a controlled environment. Stratification would appear to be the most important aim, for, particularly where there are dozens of tables and chairs, there will be plenty of vertical punctuation by people; furniture is, therefore, better arranged as one horizontal stratum, walls and curtains as another, and ceilings with what now seem to be their almost universal, decorative lighting pools (and/or rivers), yet another.*

second-rate in decoration was openly and warmly embraced.

In recent years, exceptions to this rule are found in Italian and American transatlantic liners. Both countries are, to use a loose term, extrovert, delighting in bold colours and experiments in form. In the liner *United States*, for example, the Americans have shown what can be done in an idiomatic style of decoration, which though it may not exhibit the higher flights of imagination is both luxurious and simple. An achievement, what is more, arrived at without recourse to a multiplicity of exotic woods, since all wood was forbidden owing to special risks of fire in war, for which the ship was designed to be easily converted. The *United States* is a decorator's ship, and it shows the advantages of humility. The Americans are not proud of ignorance, where they possess no knowledge they *don't*



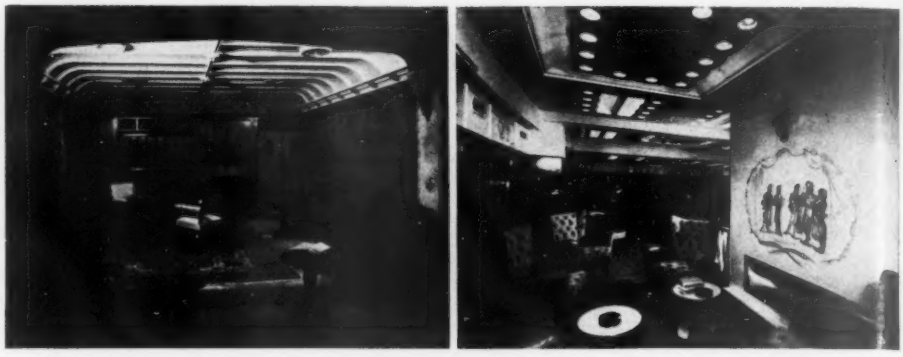
15, *all-metal furniture and walls and fire-proofed fabrics give the* United States *a clean-limbed, while avoiding a bare-boned, look* (*see also* 38, *page* 139).

know what they like, and they expect to be told by those who do know.* This has its advantages and its disadvantages, which I do not propose to discuss here. What it has meant in the field of decoration is the development of an idiom created by decorators and owing a debt to various of the world's contemporary styles. It is, therefore, uninhibited by architects' fears of what the other chaps will think. The glossy magazines have helped establish the idiom and have turned it into a ruthless rule of taste. The danger of this is the danger of all established canons. Meanwhile, there is surely a lesson for us in a canon which can make even our big guns look fairly small.

This American idiom is, nevertheless, a national one, and though it may provide a

* I have not heard of an American ship, as I have with a number of British ones, where the owner's wife chooses the colours and fabrics.

designs that put Britain at the bottom of the list



16, 17

the kind of interior that puts Italy near the top

18

saving grace for Britain from the Orient Line

19

16, *Smoking Room in the* Andes, 1948. '*Tudor by the yard' brought up to date with jazz-modern fabric on non-Tudor upholstery.* 17, *Smoking Room in the* Saxonia, 1954, *modernistic, with touches of Louis the Hotel* (*clock*) *and cafeteria Regency* (*mural*): *both First Class.* 18, *Cabin Class Writing Room on the* Cristoforo Colombo; *perhaps a little mannered, but where, in the morass of ship interiors, there is lightness of touch, elegance, assurance—in one word, style* (*in the non-historical sense*)—*complaint on such small scores becomes carping.* 19, *Tourist Class Library in the* Orsova—*simplicity almost amounting to luxury, a remarkable achievement in a sphere where economy usually spells austerity*

lesson it cannot be expected to provide *answers* to our own problems. It should also be emphasized that it is a pattern-book style (that is what justified the term idiom); the Americans have not, so far, made use in their transatlantic liners of their frontier-pushing designers like Eames, Knoll Associates and Dreyfuss, though Dreyfuss and Raymond Loewy have worked for lines which serve South America and the Pacific.

If we need more than a lesson—inspiration in fact—it is, of course, the frontier-pushers we should look to, either in America or elsewhere. We have already done this, often quite successfully, for land-based furniture, though we are long overdue for a genius or two of our own.

Meanwhile the Orient Line still has the lead among British ships that it has held for twenty years, each new liner (the *Orsova* is the most recent) marking a steady advance on the last, with bolder colours, more artists collaborating, new materials being tried and now the first redesign of the classic deck-chair for fifty years.

In spite of improvement in the decoration of some ship interiors since the war, it does seem remarkable to the lay critic

20, *Ernest Race's deck-chair for the Orient Line, made of formed, laminated beechwood; finished with synthetic lacquer, it is collapsible and hingeless; armstraps are of nylon and squabs of rubber-foam are covered with p.v.c. fabric.*

that the planning remains almost totally unchanged. Conservatism seems even more stringently inhibiting at sea than on land. One shipping correspondent said recently that 'naval architects and engineers never had any doubt as to the technical merits of placing the engines at the aft end' and yet it was not until last year that a British passenger liner, the *Southern Cross*, appeared with this improvement. The more efficient planning both of decks (at last free of smuts) and of interiors made possible by placing the engines aft is obvious. Yet even

the babel of many forms, most of them unnecessary

21

the coherence that comes from a common vocabulary

22

23, 24

21, *the so-called 'Yukon Bar' in the* Saxonia. *The lesson that this and all the other cautionary examples seem to teach is 'do simple things simply'; this century is no good at complicated design—all ingenuity and subtlety should go into line, texture, pattern and the right juxtaposition of these, and all the materials employed, to each other.* 22 *is a lovely example of how to do just this. The craftsmanship may be no better than in* 21, *but sheer design expertise makes it look better; it is the First Class Bar in the Danish ship* Kronprinsesse Ingrid. 23, *in the* United States *and* 24, *in the* Cristoforo Colombo, *though not quite up to the standard of the Danish example, show that the better designers all speak with one voice—note the agreement on the best shape for the bar stools, and compare it with those in* 21.

extraneous detail creates chaos in a large, low room

25, 26

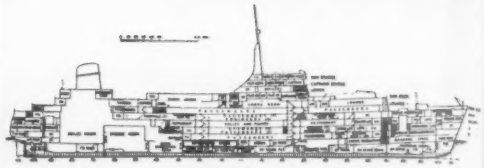
horizontality can be a virtue if you follow the rules

27

non-axial and below axial, examples that follow the rules

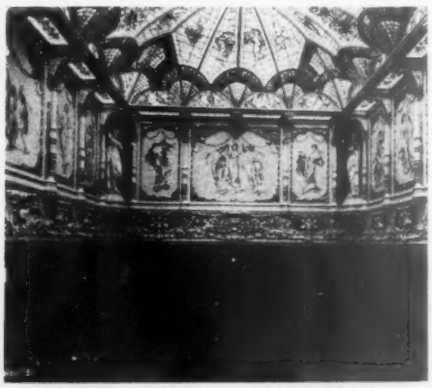
28

25, *the* Pretoria Castle, 1948, *and* 26, *the* Rhodesia Castle, 1952, *both Union Castle Line. In* 25, *a system of beams is created in the ceiling for 'decorative' reasons, which combine with the lighting troughs to confuse the eye and oppress the spirit. In* 26, *bands and blobs of light take over the dominant role and serve in their turn to make visual chaos out of an existing confusion.* 27, *in the* Cristoforo Colombo, *shows one way of dealing successfully with the large, low room. The ceiling is, so to speak, 'lifted off' by brilliant indirect lighting and the playing-down of subdivisions; bounding walls are treated as backgrounds to people, with horizontal emphasis accepted and even accentuated (striped curtains); furniture is stratified (see also* 14, *page* 135). 28, *in the* Orsova, *shows the same principles employed to more formal ends; the floating ceiling is kept to the central area (perhaps another hang-over from the clerestory, see* 30 *and* 31) *and columns, mirrors and curtains all emphasize the axial layout; if not quite as successful as* 27, *the effect is calm, orderly and pleasing.*



29, *section through the* Southern Cross, 1955, *the first British passenger liner with engines aft.*

in the *Southern Cross* no radically new planning ideas seem to have revealed themselves as an outcome of a technical advance which should be of marked advantage to the planner. This raises the question of how close a collaboration exists between naval architect and decorator, and whether a closer one might not call in question a number of planning shibboleths, if such they are, that would seem, again to a lay critic, to be without clear technical justification. For instance, the two-floor-high centre to the grand public rooms (1st class). This, apparently, is left over from the old days when the need for natural light and ventilation demanded a break-through to the upper deck for either a dome or clerestory. It is true that a very large, low-ceilinged room can be oppressive, but are there not a number of ways of overcoming this, without recourse to the immense amount of waste space that



30, *above, the* Saxon, 1899, *typical of the elaborate clerestories needed in earlier times for ventilation and light.* 31, *below it, the* Queen Mary, *with a clerestory 'hang-over,' now artificially lit, and not used for natural ventilation.*

double-height rooms entail? Or, if spatial excitement or impressiveness is wanted, why not really exploit the height with stairs, galleries, flyovers, etc.? Are so many large public rooms needed anyway; why not more, smaller rooms? Apart from other advantages, they are far easier for the decorators to handle successfully.

Again, one of the most unsatisfactory features of nearly all ships' cabins is the lumpish furniture which projects in the most unpleasant cubist compositions into the confined spaces—the effect often aggravated by the use of highly-polished veneers. Could not decorator and naval architect devise some method for building-in furniture, wash-basins, etc.? Would it not be possible, for instance, to plan cabins in pairs, with structural walls between every other cabin, the ones between comprising storage and plumbing walls?

32, *above, 'crib'd, cabin'd and confin'd,' a stateroom on the* Andes; *though the beds disappear into the wall, that would be only two lumps less, in a room seemingly all composed of them.* 33, *below it, a cabin on the* Orsova *with furniture, heater, basin—all projecting higgledy-piggledy. Is it beyond the ingenuity of designers and naval architects to build furniture in?*

Then there is the whole question of the incorporation of services into the decorative theme—fire protection devices, air conditioning or ventilation—lighting, pipes and so on, in addition to all the lettering, symbols and mechanical indicators needed for safety, service and just getting about. Isolated examples can be found of the intelligent exploitation of such things to decorative ends (see 41) but generally, even if some thought has been given to the design of the object itself, it is usually left to fend for itself in the over-all picture, and

Balmoral Castle 1910: functional tradition in full vigour

34

dead hands and blind eyes in British post-war ships

35

36, 37

simple things simply done in Italian and U.S. ships

38, 39

34, *cabin in the* Balmoral Castle 1910, *with its removable bunkside table, ship's chest, disappearing basin, built-in sofa, it shows up the three examples that follow in a particularly depressing light.* 35, *cabin on the* Caronia 1949. 36, *cabin on the* Andes *and* 37, *on the* Saxonia—*a jumble of shapes, textures and patterns, resulting from an inability to visualize the problem in advance. Even if they were good of their kind, which they are not, the elements are unrelated and present a restless and incoherent picture.* 38, *cabin on the* Cristoforo Colombo, *and* 39, *on the* United States; *designs which do present a coherent picture; in each case the designer clearly has assurance and conviction.*

40, above, corridor in the Andes; *apart from the reflecting walls which confuse rather than enlarge the space, and the unnecessarily elaborate trim to the door, it is further complicated by projecting ceiling lights, ventilators and fire sprays. 41, below it, on the* Orsova, *shows an ingenious way of overcoming this; an open false ceiling of slatted-wood conceals all services and, since it is built in sections and hinged, provides easy access for repairs.*

very disruptive it, and other things like or unlike it, can be to that picture.

It seems that there cannot be any real advance in the interior design of ships until these and all the fundamental planning problems are thrashed out between naval architect and designer in an atmosphere free of marine conservatism and designer's bigotry. The combination of an objective study of the subject and some hard, creative thinking by a first-rate artist might well put new life into the idea of sea transport now so fiercely competing with air.

circulating

simplicity of outline is the key here as in all else

42, 43

44, 45

42, the Rhodesia Castle, *43, the* United States, *44, the* Conte Grandi *and 45, the* Kronprinsesse Ingrid, *a progression from the complex to the simple. The overlay of unnecessary pattern in the balustrade of 42 confuses the eye without adding distinction. 43 is better, but the handrail supports are affected. 44 is good, though the curves lack subtlety. 45 has all the virtues, utter simplicity, good line and pleasing texture.*

postscript

cutting from the Manchester Guardian, December 15, 1955

The outward appearance of the new 21,637-ton vessel, the forty-seventh to be built by John Brown's and their predecessors for the Cunard Company, closely resembles that of her sisters. There will be the same gracefully curved stem, cruiser stern, and large single funnel. The inside will, however, be very different. Instead of contemporary patterns and effects, the designers are seeking "to re-create the past in terms of the present by using modern methods of construction to interpret some of the gems of historical interior design and decoration."

The inspiration for these schemes seems to have been the popularity of period style in some of the earlier liners. "No ship interiors have been more successful than the Aquitania's Carolean smoking-room or her Palladian lounge," the official brochure says. But it is emphasised that there will be no slavish reproductions of existing rooms and it is aimed to make the whole effect "refreshingly original." There will so be—it is one of the modifications said, exp

2 DESIGN REVIEW

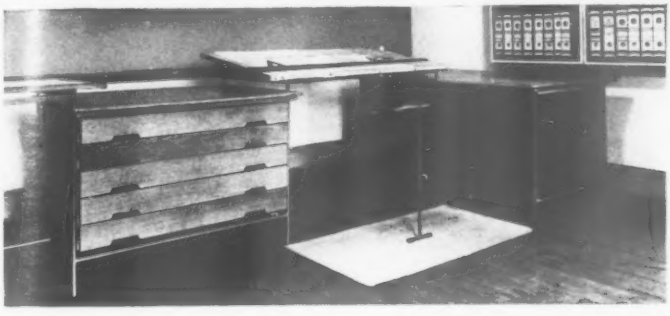
Drawing Office Furniture

Magpie Furniture—best known for its Ladder Unit in the British flat at Hälsingborg—has found a way of lowering the prohibitive cost of drawing office furniture. The plan chest, necessarily a strong item, is used to support the drafting unit.

The range consists of three units. 1, the basic unit, is the plan chest, which is slotted to receive the drawing stand in any of four positions. 2, the drafting stand has two legs at one end and, at the other, two dowels to slot into the chest. A combination of units 1 and 2 provides drawing board support, reference table, and five drawers for plan storage. Unit 3 is a bridge that can span between two plan chests to support a drawing board.

This furniture has of course more positive virtues than its low cost. It has all the planning flexibility of a game of dominoes. The plan below illustrates one possible layout, and as an office expands more units can simply be added. It has been designed in such a way that appearance and construction are indistinguishable. The welded framework is steel tube enamelled grey. The welds are excellent. The plywood table-top is clear polished, and side and back panels are stove-enamelled red and white respectively. The oak-fronted drawers slide in oak runners. Brass screw feet are tapped to the legs of the units so that they can adjust to uneven floors.

The prices quoted here are for the double elephant sizes. Unit 1, £36 10s. Unit 2, £4 17s. 6d. Unit 3, £3 8s. They are obtainable from Magpie Furniture, 8, Onslow Road, Richmond, Surrey. D.R.



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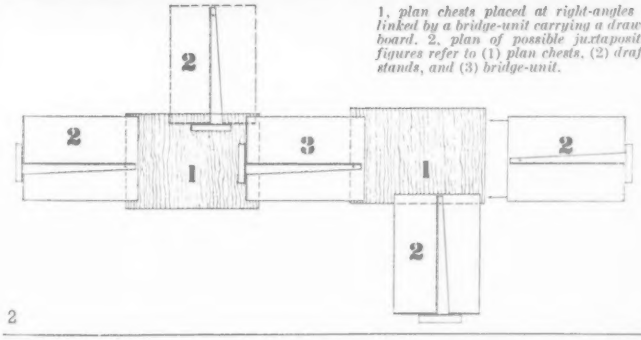

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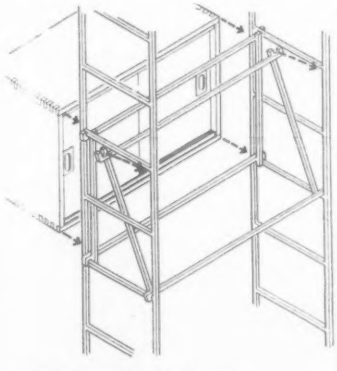
1, plan chests placed at right-angles and linked by a bridge-unit carrying a drawing-board. 2, plan of possible juxtaposition; figures refer to (1) plan chests, (2) drafting stands, and (3) bridge-unit.

Storage Units

Ever since the contemporary style took shape its adherents have found difficulty in finding ready-made shelves and cupboards to hold books and all the paraphernalia of a living room. Those determined to avoid unpleasing detail have had to choose between shelves knocked up at home and contemporary cabinet work of the highest quality. Simple labour-saving furniture was anomalously confined to the rich. Designs for unit production have been brought out from time to time. A pre-war example was Dr. Martin's unit furniture for Rowntrees of Scarborough. But the conditions have never existed for enough of such furniture to be produced to bring the price down to a popular level, and, fifteen years later, we are not much better off. But we may be soon. There are now several carefully designed ranges of storage units taking up a minimum floor space, and one of these has taken cost as its first consideration.



typical assembly of ladder units.

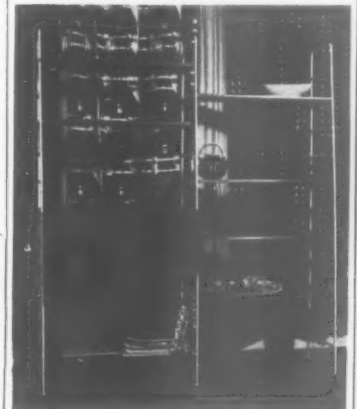
Ladder units, 3, are the result of carrying the analytical method of designing to its logical conclusion. The customer is offered the vertical, horizontal and stiffening components of the structure as separate items. From these he can build up the exact proportion of open shelving and cupboard space that he needs. The vertical components are metal ladders. Shelves can be clipped to the rungs of the ladders.

Primavera claim to have been the first to market a ladder unit. This one is designed by Nigel Walters, 4. The ladders are in light steel rods, stove-enamelled and excellently finished, tapering towards the top. The shelves in the example photographed are in mahogany, the sideboard doors in rosewood. Other woods of the customer's choice can be used. The shelves are fitted with metal clips which rest on the rungs of the ladder. When shelves and cupboards are in position two piano wires are stretched diagonally across the back of the structure.

The designers of Magpie Furniture, Martyn Collins and James McKay Spence, have designed a ladder unit to the minimum cost, in square section welded steel, 5. The basic steel components are the ladders L1 and steel frames which interlock with the ladders to give the unit its rigidity. There are two frames, a vertical L2 and a horizontal with the same dimensions L3. The frames are 18 inches by 27 inches; the ladders 12 inches deep with rungs every 9 inches vertically. The framework supports wooden shelves, and two types of box vertical L4 and horizontal L5.

The Swedish firm String produces a range of ladder units mainly for hanging, but including some standing pieces. Peter Jones stocks a bookcase and a bedside unit, 6. The metal is coated in plastic, the shelves teak or birch. D.R.

5



4

4, Primavera ladder unit, designed by Nigel Walters.

5, Magpie minimum-cost unit, designers Martyn Collins and J. W. Spence; 6, String bedside unit, stocked at Peter Jones.

6

Prices are as follows:

		£	s.	d.
LADDERS.				
Primavera		4	4	0
Magpie Furniture ...		3	0	0
Frames		1	15	0
SHELVES.				
Primavera		1	7	0
Magpie Furniture, ft. run			12	0
BOXES.				
Primavera ...	from	12	0	0
Magpie Furniture	L4	8	7	6
Frames ...	L5	7	10	0

String, as a guide to pricing, a wall unit with two ladders and two shelves, in teak £2 12s. 6d., in birch £2 2s. 0d.

Italian Contemporary Furniture

The 1955 exhibition of Italian handicrafts in London aimed to show that in Italy no distinction of style exists between designs for handicraft and for industry. This is a confusing distinction for English people. The Italians regard as handicraft anything actually made by hand, as, for instance, a mass-produced chair in bent metal, as distinct from objects handled by machinery. Our distinction is between the self-employed craftsmen or small organization and the factory.

Italy has a tradition of fine iron-

work. Appropriately the most original object was a wrought iron jar with a lid designed by a student. Iron and steel rods figure largely in recent designs, but the idea of beating out objects for household adornment came as a surprise. The jar is shown, 7, with a vase in the same material.

Italy's elegant and sophisticated brasswork is known over here. Cesare Lacca's brass coffee ware combines an amazingly fine finish with a variety of elegant shapes. The large pot, 8, retails at about £4 11s. 0d.

The designer of the long brass dish, 9, has had a different idea about this material, keeping a sharp edge and sheet character. The price £1 14s. 11d.

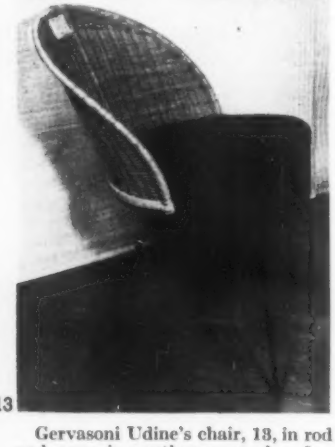
Cianfanelli, Florence, has produced some extraordinarily light and cheap brass table ware, 10. The bowl and large plate sell each at about 5s. 9d., the small plate at 3s. 8d. The bowl and plates are photographed against a straw and cotton fabric, lighter than any of the excellent examples I have seen in this country. It could be used as hangings, but is normally sold for skirts. Designed by A. Botteri, Campoligure (Genoa) the material is 37 inches wide and approximately £1 15s. 0d. a yard.

The very agreeable wooden bowls by students, 11, were treated with an extremely synthetic looking polish.

12

Glossy, but opaque, this gave the wood a curiously metallic quality, wickedly at variance with handicraft tradition.

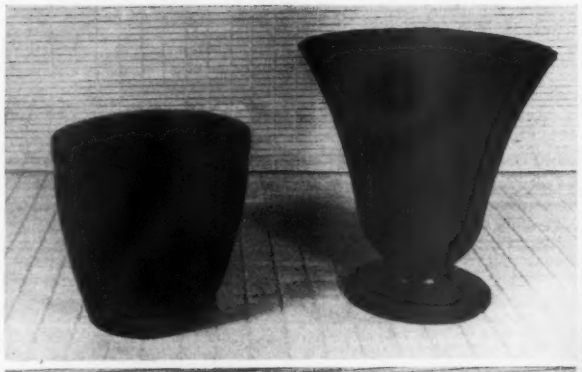
Amadeo Cassina's chair, 12, in veneered ply and solid cherry is approximately £6 plus 20 per cent duty and 25 per cent purchase tax.



13

Gervasoni Udine's chair, 13, in rod and cane is another example of a type recently discussed here. The subtlety that designer Maurizio Tempestini has brought to the design does not produce as happy an effect in this material as a studied simplicity. Price £4 approximately.

Prices given are retail, and exclude tax or duty, unless stated. D.R.



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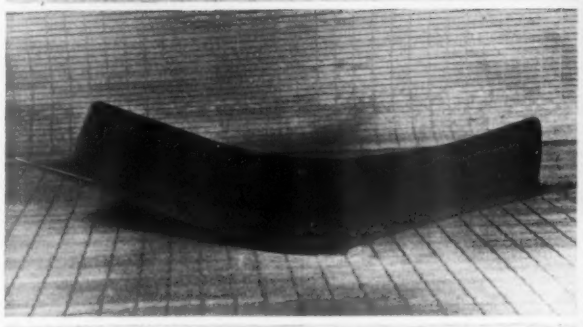
8



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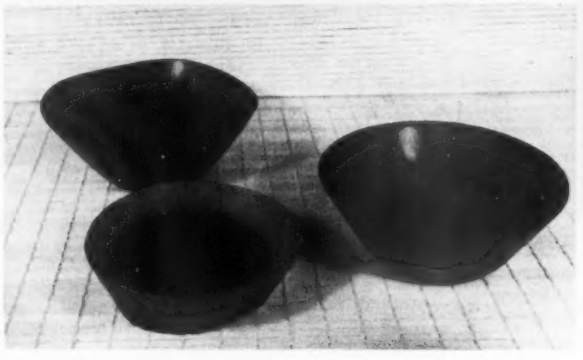
10



11

7, wrought iron jar and vase; 8, large brass coffee pot by Cesare Lacca; 9, brass dish; 10, brass table ware from Cianfanelli of Florence; 11, wooden bowls by students. The straw and cotton fabric against which most of the objects are photographed is by Botteri of Campoligure.

3 TECHNIQUES

PRECAST PRESTRESSED FLOORS

by Robert Maguire

Architects seem always to be in search of systems of construction which will give them complete flexibility in design, have a positive structural expressiveness in accord with modern aesthetic trends, comply with the byelaws, and at the same time be easy and quick to erect with a minimum of scaffolding, shuttering, and sloppy wet work. The words 'precast' and 'prestressed' have both in their time raised hopes in these directions. Precast and prestressed flooring systems are at present only at the beginning of their development, and in this article Robert Maguire describes the advantages of combining the two techniques and reviews the systems so far put into production.

A large range of precast flooring systems in ordinary reinforced concrete has been available for many years, and in part has answered the need for quickly-erected high grade floors and roofs. On the site the main advantage of using precast units is the elimination of shuttering, an item whose cost is quite out of proportion to its temporary nature, and which obstruets the work of other trades. Also, factory production brings with it the advantages of lower cost and greater control over quality of materials and method. The erection of precast units is much quicker than that of *in situ* slabs and hollow pot floors, but imposes some restrictions on their design, for unless elaborate lifting plant is to be used the units must be light enough to be man-handled. The resulting slender units require extra reinforcement solely to take care of handling stresses.

The introduction of prestressing into this field has so far been very successful. In fact it may well be here that prestressing will find its most extensive application, for the 'long line' method of stressing, which is suitable only for the quantity production of precast units, is also the most economical. Looking through the impressive if short list of the attributes of prestressed members it

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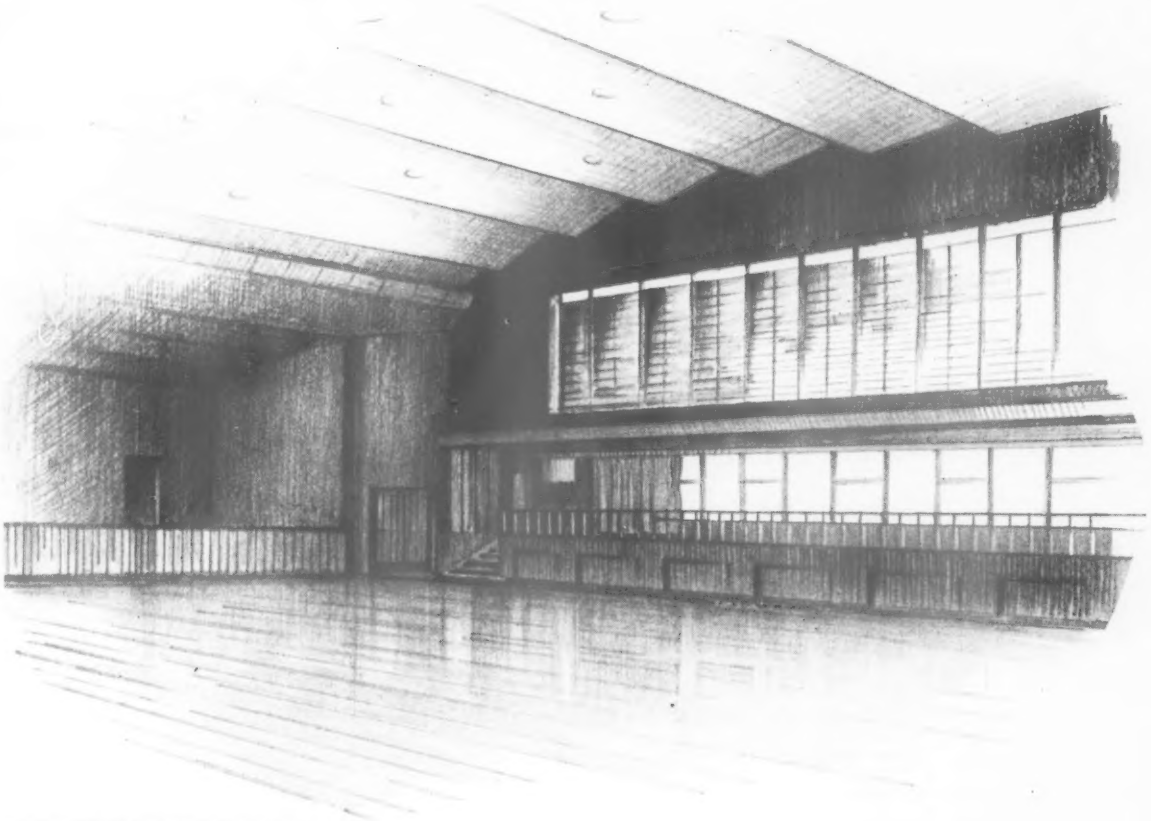
HERE, THERE and



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Prestressed Concrete

—AN ASSESSMENT

THE VERY GREAT POTENTIAL VALUE of prestressed concrete is the best possible reason why its merits should be assessed objectively, and sensational statements both *pro* and *con* can be examined in the cold light of fact.

WE have specialised in precast concrete since 1919. While we have no bias whatever as between ordinary R.C. and prestressed—and in fact our business was founded on the former—we have been cautious advocates of prestressing, for specific purposes, during the last eight years. In that time the rate of delivery of Bison prestressed products has climbed steadily from 400 tons to 112,000 tons a year, including floor and roof units, columns up to three-storey height in one length and beams up to 60 feet span. Virtually all these have been erected by our own teams. We can therefore claim some practical knowledge of the subject. In addition we have carried on a continuous programme of research, including protracted tests under extreme load.

First, the question of cost. Estimates put in by firms lacking experience and proper equipment have created an impression that prestressed is more expensive than ordinary R.C. We can say from our own knowledge that, properly applied and carried out our way, it is actually lower in first cost apart from its other special advantages. The main reason for this is economy in steel. Our figures show that, on an average job, the cost of high tensile steel wire for prestressing is considerably less than half of the much greater weight of mild steel required for reinforcement. A very small fraction of this saving is absorbed by extra skilled labour: the rest comes off the cost of the job. Last year customers of Bison prestressed saved £240,000 by using 2,500 tons of wire instead of 12,000 tons of mild steel.

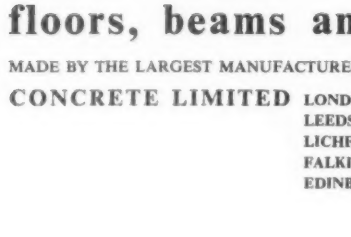
As to results: it is an undeniable fact that prestressing, properly carried out, greatly increases the potentialities of concrete; and that the latest prestressing techniques—besides improving reliability—give still higher strength/weight ratios, reducing dead loads and allowing wider spans; thus permitting economies in structure and foundations, and greater freedom in design. Prestressed beams, being lighter than ordinary R.C., moreover, can be handled conveniently in greater lengths. These benefits are of course additional to the known advantages of manufacture off site in ideal conditions—speed, closer control, lower first cost, avoidance of delays due to weather, and better all-round working conditions on site.

It is equally true that the actual strength and endurance of every prestressed member are dependent to a high degree on quality of materials and the standard of workmanship in fabrication. This is inevitable; it is characteristic of the process that it places great reliance on efficient methods.

For this reason Concrete Limited have given and give the most exhaustive attention to essential details of prestressing theory and practice. The correct mix; the placing and stressing of the wires; their configuration and treatment for maximum bond strength; compaction; curing conditions—all are the subjects of continual research and trial. Special equipment and moulds have been developed. A rigid standard is laid down for materials, and enforced by strict tests of every delivery. All skilled operations are carried out by trained men under expert supervision and laboratory control.

The degree of success achieved is evidenced by the tonnage of Bison prestressed products now giving satisfactory service in Britain's most important industrial buildings, flats, schools, hospitals, airports and stores. Concrete Limited are in fact the largest producers of constructional prestressed concrete in the world.

The potentialities of precast concrete, ordinary R.C. or prestressed, should be considered in the light of all available facts at the earliest possible stage. We are always glad to be asked for an appreciation, and to produce the data in our possession.



BISON

floors, beams and precast frame structures

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FALKIRK Etna Road, Falkirk. Falkirk 1585
EDINBURGH Sighthill Industrial Estate, Edinburgh. Craiglockhart 1729

CON.39

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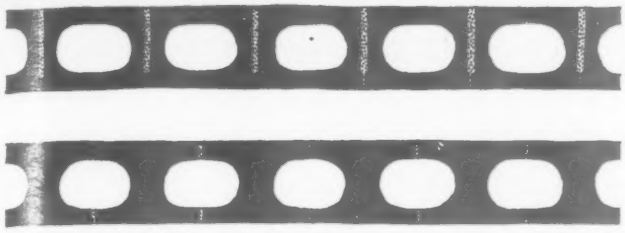
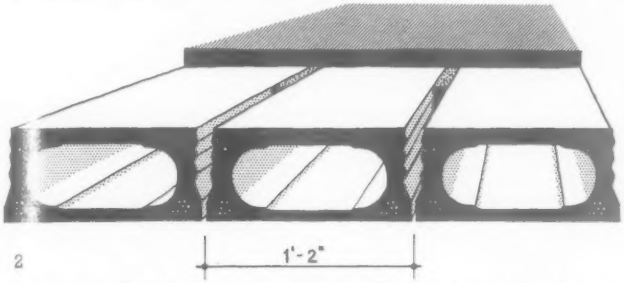


1

Diagrammatic cross-sections of prestressed beam units. The concrete in each unit is disposed with its greater mass in the top and bottom flanges; whether the units are of box- or I-section, the result is a hollow floor of great strength for its weight.



2

Bison Prestressed Units (Concrete Ltd.). Hollow box-section units, made to the same standard range of thicknesses as Bison units in ordinary reinforced concrete. The screed is optional. Services may pass vertically through the floor in the centre of each unit, since the prestressing wires are grouped at the sides. Fire resistance test time: 1 *hour* 28 *minutes.*

is easy to see why the impression one gets from manufacturers' publicity is of a sort of structural panacea.

The most outstanding effect is, of course, the saving in dead weight which follows from using the properties of modern high grade concrete and steel to the full, as only prestressing can. For short-span work this may not always be an advantage, since loss of weight greatly reduces sound resistance, but it does make possible medium-span beamless floors of shallow depth in situations where formerly a system of secondary beams and short-span floors would have been necessary.

The compressive stress induced in the concrete by the prestressing force resists or annuls any tensile stress produced by live loading. One result of this is that no cracking takes place under normal loading conditions, making the application of interior finishes such as plaster less hazardous. After any exceptional loading, when tensile stresses may be induced and the concrete may crack, the recovery of the member to its original form and condition is complete.

The production of units by the 'long line' method provides an automatic check on stresses in the steel, since greater stresses are produced in the high tensile wires during manufacture than are ever likely to be produced by live load.

Handling stresses are no great problem in a prestressed member, because the initial compressive stress is generally sufficient to counteract any tensile stresses produced by the comparatively small dead weight. In fact, units can be made which, designed to carry only their own dead weight and a small nominal live load, are of an almost ridiculous slenderness.

It is this last possibility which has given rise to a most significant change in concreting methods. For over half the concrete necessary for the full structural efficiency of a precast floor can now be dispensed with during transportation and erection, and then added *in situ* using the units as permanent shuttering. The slender units will support the weight of the structural topping while this is wet; the two together then form the complete floor.

prestressed beam units with non-structural screed

The most straightforward application of prestressing to precast floors is simply to substitute prestressing wires for the normal mild steel reinforcement. This enables the same size of unit to span longer distances, or alternatively, to carry larger live loads. Prestressed units of this sort are used in the same way as their ordinary reinforced concrete predecessors; simply laid side by side and covered with a non-structural screed.

Each unit is designed to carry the total loading falling upon it, without relying upon distribution to adjacent units, and so needs no propping before screeding or grouting-up. However, owing to the eccentric placing of the prestressing wires, which cannot be avoided, there is always the tendency for the units to 'hog,' i.e., to assume a permanent deflection upwards during stressing. This gives a slightly curved soffit, although the curvature of the upper surface may be lost in the thickness of the screed.

Beam units may be of two general types; hollow box sections and I-sections. When placed and grouted up, these both produce the same result—a hollow floor with top and bottom membranes and connecting webs, 1.

Hollow box beams. Several makers of the familiar reinforced concrete hollow box beam units are now also producing them prestressed, 2, 3 and 4. Some flexibility in design is allowed by the fact that both types are made to the same standard range of thicknesses, so that short- and medium-span floors on the same job can economically be made to have the same thickness.

I-beams. I-beams have the advantage that, as well as forming a complete floor if used by themselves, they may also be spaced apart by hollow pots resting on the lower flange. With the possibility of these two arrangements, the same unit will do duty for a wide range of spans and loadings, 5, 6 and 7.

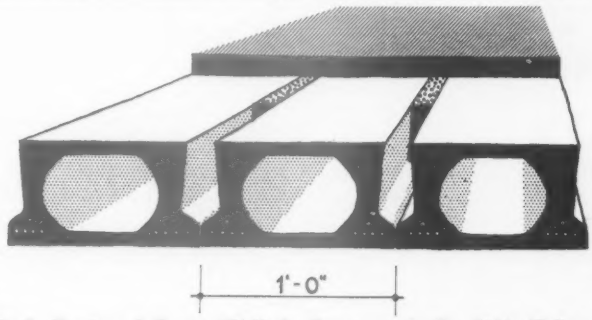
maximum spans

2 Thickness.	30 lb./sq. ft. live load.	200 lb./sq. ft. live load.
4½"	18' 0"	11' 0"
5½"	22' 0"	12' 0"
6½"	25' 0"	14' 0"
7½"	29' 0"	17' 0"
8½"	33' 0"	20' 0"

3 Thickness.	15 lb./sq. ft. live load.	100 lb./sq. ft. live load.
6"	23' 0"	18' 0"
6½"	25' 0"	20' 0"
7"	27' 0"	21' 0"
8"	30' 0"	24' 0"

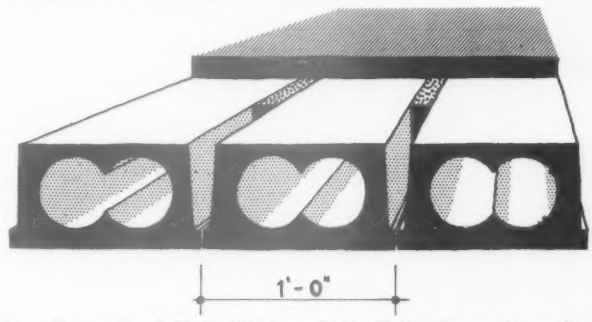
4 Thickness.	30 lb./sq. ft. live load.	200 lb./sq. ft. live load.
5"	18' 9"	11' 0"
6"	22' 6"	13' 6"
7"	26' 3"	15' 6"

5, 6, 7 Type.	30 lb./sq. ft. live load.	200 lb./sq. ft. live load.
Single beams, Wide blocks	20' 6"	11' 11"
Single beams, narrow blocks	23' 8"	13' 9"
Double beams wide blocks	25' 5"	15' 0"
Single beams, narrow blocks	—	16' 9"
Beams only	—	23' 0"



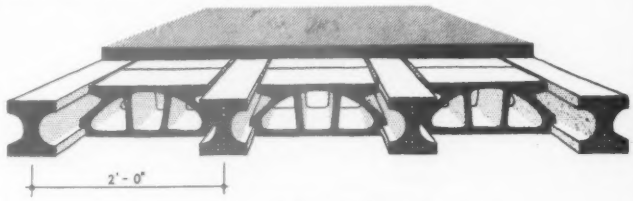
3

Girling's Prestressed Beams (Girling's Ferro-concrete Co. Ltd.). Hollow box-section units. The non-structural screed is optional.



4

Raphcon Pre-tensioned Units (Raphcon Ltd.). Hollow box-section units, also made in ordinary reinforced concrete. Services may pass vertically through the 7 inch wide hollow centre of each unit.



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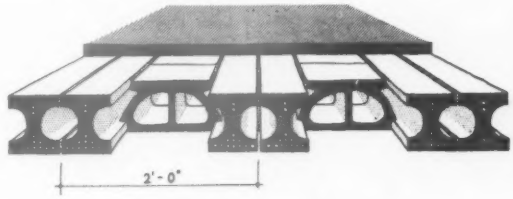

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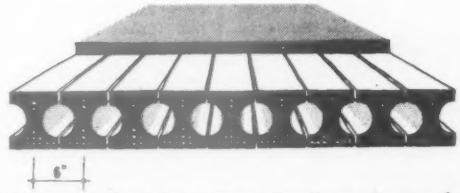
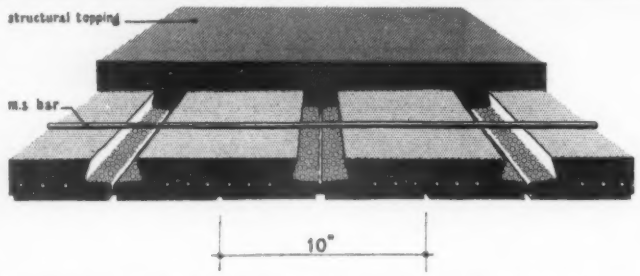


7

Pierhead X7 Units (Pierhead Ltd.). These I-section units are of a constant depth of 7 inch, and variations for different spans and loadings are made by spacing the beams apart with clinker hollow blocks. The screed is optional. Single beams with wide blocks, 5, give the lightest floor; the narrower block shown in 6 can also be used with single beams. Double beams in conjunction with either wide or narrow blocks, 6, increase the strength further, while for very heavy loads the beams may be placed side by side, 7. Fire resistance test time: over 2 hours.



8

The Bison Plank Floor (Concrete Ltd.). A combination of in situ *and precast methods which combines well with any type of primary structure. When the planks are placed side by side a dovetail is formed which ensures a good bond for the structural topping concrete; the tops of the units are also roughened. Transverse mild steel rods distribute live loads between the units. Tests have shown that 70 per cent of the load is distributed in this way. The planks are made in two thicknesses (2 inch and 2½ inch) and by varying the thickness of the topping, floors of 3 inch, 4 inch, 5 inch can be constructed. Special trimming planks are also made.*

prestressed units for use with a structural topping

This type of system is a decided advance on previous arrangements. Although several worked-out systems are now on the market, most of the manufacturers are still doing extensive development work in this field, with the result that modifications and improvements are continually being made.

At the present time their use is somewhat restricted, since the high quality of workmanship and of the concrete used for the topping generally requires the use of skilled labour and special mixing plant which is beyond the reach of the small contractor. One firm at least is carrying out exhaustive tests on the effects of poorer workmanship, with the aim of developing a more or less foolproof system.

Apart from the obvious advantage of ease of handling and erection which results from the use of lighter units, these systems allow a high degree of flexibility in design. This is, of course, mainly due to the nature of the *in situ* concrete; by combining precast and *in situ* methods one gets, as it were, the best of two worlds.

Most of the systems make use of mild steel reinforcement laid in the topping to distribute stresses between adjacent units. As an extension of this principle, continuity reinforcement set in the topping can be used to make the construction continuous over supporting beams, or to support cantilevered balconies, eaves, and other such features.

The various systems at present on the market differ considerably from one another and it is difficult to classify them; but they aim at an end-product which is either a simple slab (with the prestressing wires evenly distributed over the lower part of the section) or a ribbed slab (with the wires grouped together at the bottom of the ribs).

Prestressed simple slabs. These are achieved by using a flat plank-like unit to form the soffit, with a topping of even thickness in which transverse mild steel bars are placed to distribute stresses. Both the method and the result have the advantage of extreme simplicity; there is only one type of unit to handle and when this is placed in position a flat deck is formed on which workmen can operate without the use of scaffold boards. The construction being homogeneous, the risk of pattern-staining on the underside is reduced to a minimum.

In one such system, 8, the manufacturers have taken great care to ensure that an effective bond is made between the units and the topping. To this end the sides of the units have been dovetailed and the upper surfaces roughened. Tests have shown that each of these provisions is sufficient in itself, so that a wide margin of safety is allowed.

Another system, 9 and 10, employs a slightly troughed unit with rebated interlocking edges. This can be used with either face uppermost, so that slabs with either level or ribbed soffits can be produced, the latter being rather stronger for their weight but forfeiting the advantage of a cheap flat ceiling.

Prestressed ribbed slabs. Ribbed slabs are conveniently formed by using hollow pots or wood wool as permanent shuttering between the ribs, in much the same way as in conventional hollow pot floors. The important difference in erection procedure, however, is that the pots or wood wool are here supported on the prestressed members which form the greater part of the ribs, so that no shuttering is needed. For the longer spans a little propping may be required with some systems, usually only at mid-span. The concrete top-

maximum spans

(1 : 2 : 4 *topping mix*)

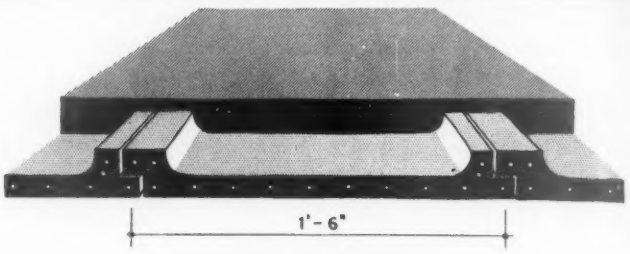
8 Total thickness	15 lb./sq. ft. live load.	112 lb./sq. ft. live load.
3"	13′ 0"	—
4"	15′ 0"	10′ 0"
5"	18′ 0"	12′ 0"

Note: By using a 1 : 1½ : 3 topping mix, greater loadings and spans can be obtained, e.g., 224 lb./sq. ft. over 12′ 0" or 60 lb./sq. ft. over 18′ 0" for a 5" thick slab.

11 Type.	30 lb./sq. ft. live load.	100 lb./sq. ft. live load.
Single beams, wide spacing	12′ 6"	10′ 0"
Single beams, narrow spacing	13′ 9"	11′ 0"
Double beams wide spacing	—	12′ 3"
Double beams narrow spacing	—	13′ 0"

12 Total thickness.	30 lb./sq. ft. live load.	200 lb./sq. ft. live load.
5¼"	15′ 0"	8′ 6"
6¼"	17′ 0"	11′ 9"
7¼"	21′ 0"	14′ 0"

13 Total thickness.	30 lb./sq. ft. live load.	200 lb./sq. ft. live load.
5"	14′ 9"	6′ 3"
6"	17′ 6"	7′ 0"
7"	20′ 0"	12′ 3"
8"	23′ 6"	14′ 0"
9"	26′ 9"	15′ 7"
10"	28′ 11"	17′ 3"
11"	30′ 8"	19′ 4"
12"	32′ 4"	22′ 0"



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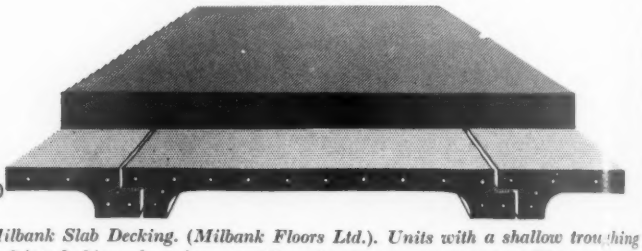
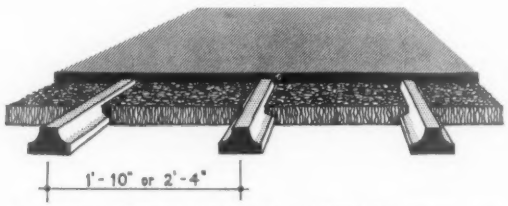


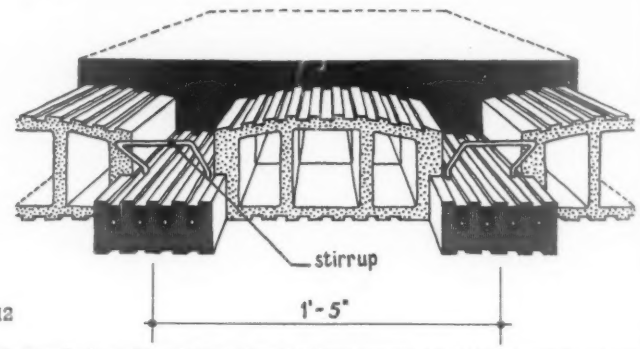
10

Milbank Slab Decking. (Milbank Floors Ltd.). Units with a shallow troughing and interlocking edges, for use with an in situ *concrete topping. The units can be used with either face uppermost, to give a level soffit, 9, or a ribbed soffit, 10. The ribbed slab is slightly stronger. A 3 inch thick slab will carry a distributed load of 84 lb./sq. ft. over a span of 10 feet.*



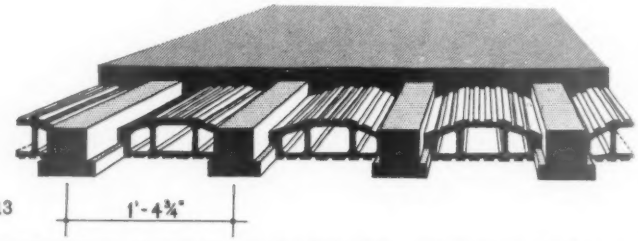
11

Pierhead C5 Units (Pierhead Ltd.). This lightweight system uses inverted T-section units spaced apart by wood wool slabs. The concrete topping completes the structure, which has an overall thickness of 5 inch. As in the Pierhead X7 system, 5, 6 and 7, different span and load conditions are dealt with by adjusting the spacing of the units or by doubling them.



12

St. Paul's Cray Floor Units (Concrete Development Co. Ltd.). Another system in which inverted T-section units are used. Allowance for various load and span conditions is made by changing the thickness of the structural topping. The system may be used with or without propping the units during erection; if props are used, longer spans may be obtained.



13

Stahlton Floors (Costain Concrete Co. Ltd.). The plank units used in this system are formed of unit lengths of clay tile placed end to end. Stressing wires run in grooves in the tiles and are grouted up; continuity with the topping concrete is ensured by stirrups. Various types of spacing blocks may be used, and the planks may have 3, 4 or 6 stressing wires, giving a great variety of span/load conditions. The planks are propped at 5 feet centres during erection.

[continued on page 146

THE MASTIC ASPHALTE ROOF

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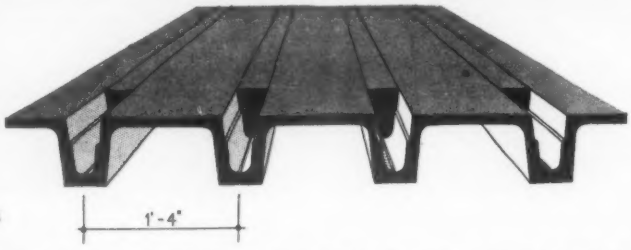
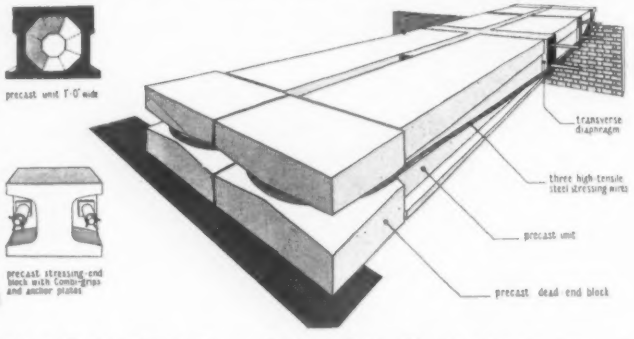


15

Milbank Channel Units (Milbank Floors Ltd.). These units vary in depth from 4 inch to 8 inch. They are placed side by side and the cavity made by the sides of adjacent units is filled with concrete, forming a series of linked T-beams, 14. *For longer spans or heavier loads, a structural topping may be used, and the addition of mild steel reinforcement in the bottom of the cavities gives even greater strength. (A floor of this type, with a topping of 1½ inch added to give an overall depth of 7½ inch, has been tested to 405 lb./sq. ft. over a clear span of 18 feet.)*


precast unit 1'-0" wide
precast stressing-end block with Comb-grips and anchor plates
transverse diaphragm
three high-tensile steel stressing wires
precast unit
precast dead-end block

16

Raphcon Post-tensioned Floor. (Raphcon Ltd.). Used for longer spans, this system makes use of post-tensioning. The stressing cables pass from the stressing-end block, under the reinforcing bars of the transverse diaphragms, round the dead-end block, and back again on the other side of the units. The cables are grouted up after stressing, which is carried out by a small hand jack.

maximum spans

14, 15 Thickness.	30 lb./sq. ft. live load.	**16** Thickness.	30 lb./sq. ft. live load.	200 lb./sq. ft. live load.
4"	15' 0"	6¼"	23' 3"	14' 3"
5"	19' 9"	7¼"	26' 0"	15' 9"
6"	24' 0"	8¼"	28' 0"	16' 6"
7"	30' 0"	10"	29' 0"	18' 3"
8"	35' 0"			

ping completes the structure, filling up the remainder of the ribs and linking them to form a continuous ribbed slab.

The prestressed unit takes the form of an inverted T-section in two of the systems now available, 11 and 12. In another, 13, it consists of a plank, composed of unit lengths of extruded clay tile with parallel grooves in the top placed end to end to the required length. A high tensile steel wire is stretched along each groove and grouted up, and stirrups are provided at intervals to reinforce the bond between plank and topping.

One firm has introduced a ribbed slab system using channel-shaped units, 14 and 15. These can be used in several ways. For lightly loaded floors they are laid side by side and only the rib filled with topping concrete. For heavier loads or longer spans the topping can be laid over the upper surface as well to increase the overall depth, and if even greater strength is needed mild steel bars can be laid in the bottom of the ribs.

post-tensioning

All the systems discussed so far make use of pre-tensioned units, i.e., units which are prestressed during manufacture. Many experimental

14

m.s. bars

floor structures have been built in which precast units in ordinary reinforced concrete are erected in position and then prestressed together to form a continuous structure, the process known as post-tensioning. One such system has now reached a stage of development where it is suitable for general application and has been put into quantity production, 16. It consists of short box beam units arranged so that three units placed end to end form a complete span. Transverse diaphragms formed *in situ* separate the ends of the units. The prestressing force is applied by jacks to high tensile steel cables which run between the units longitudinally and are then grouted up. Strips of shuttering supported on props are necessary under the transverse diaphragms and these also support the precast units before the prestress is applied.

[Trade Notes and Contractors on page 143

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If you would like to see more of Heal's recent work for boardrooms and offices, our illustrated booklet *Furniture for Special Needs* is available to architects.

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4 THE INDUSTRY

Durlon Waterproof Cloth

100 per cent nylon yarn is the basis of Durlon cloth, one of the more recent imports from Denmark. The cloth is specially suited to upholstery and is being used at the moment by coach builders and some London hotels. In order to resist dirt and dust the material is treated to remove static electricity and subjected to a silicone application to make it water repellent. The resultant cloth can be easily cleaned with a damp sponge. Durlon is made by Dansk Silkeindustrie, Uplandsgade 54, Copenhagen, and is imported to this country through Dr. G. A. Rohan, 3a, Lovelace Road, Surbiton, Surrey (Tel.: Elmbridge 9880). The material is supplied in 36-inch and 55-inch widths at a maximum price of 25s. 9d. a yard. Due to import difficulties the minimum quantity which can be ordered is 200 yards of any one colour.

The Storemaster Cabinet

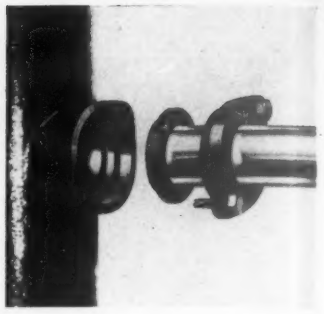
Metal kitchen cabinets, however well made, have always been very much a metal version of a wood prototype, and it was not until the new Storemaster cabinets, designed by Clive Entwistle, appeared that we have had what seems to be a perfect synthesis of industrial technique and design. Two points in their manufacture make them of great technical interest: the metal sheets of which they are made are formed by an electro process which deposits zinc on cold steel, giving better corrosion resistance than the more usual hot-rolled galvanized sheet; and the processed sheets are stressed over the frame, saving time and giving much greater strength. The cabinets are designed to the 4 inch module, base units being 36 inches high, 20 inches deep, and 20 inches, 40 inches and 60 inches in width; wall units are 28 inches high, 12 inches deep and 20 inches wide. Touch latches are used instead of handles and work throughout on plastic runners. The 40 inch units shown in the photograph are available through the normal retail channels or direct from the makers. The base unit costs £28, the wall unit £12.

Engil Development Co. Ltd., 4, Belgrave Square, London, S.W.1.

Right, the separate base and wall units of the Storemaster Cabinet.

A Screwed Waste Connector

One of the most interesting innovations in plumbing is a screwed waste pipe connector which was widely publicized at the recent Building Exhibition. The joint is used for connecting branch wastes to the cast-iron stacks of a single-stack plumbing scheme, and is made by Federated Foundries Ltd. The main stack has a cast inlet and the copper waste is housed with a "neoprene" synthetic rubber washer and a cast-iron collar with two bolts. Such an arrangement saves much time in fixing and the plumber's only concern is the ordering of the cast-iron stack. To assist him Federated Foundries Ltd. are introducing standard multi-branch fittings to cover most design requirements, but purpose-made pipes are available with reasonable delivery



dates. The joint has been tested to pressures far in excess of BS requirements and was used in the LCC's Picton Street Scheme.

Federated Foundries Ltd., 75, Hawthorn Street, Glasgow, N.2.

CONTRACTORS etc

Seed Laboratories at Witham, Essex. *Architects:* Chamberlin, Powell & Bon. *Quantity surveyors:* Davis, Belfield and Everest. *General contractors:* Helical Bar and Engineering Co.; Charles S. Foster & Sons. *Subcontractors: excavation—foundations, reinforced concrete:* Helical Bar & Engineering Co. *Asphalte:* Limmer & Trinidad Lake Asphalte Co. *Glazed bricks:* Leeds Fireclay Co. *Structural steel:* Daco Structures Ltd. *Slate cills:* Bow Slate & Enamel Co. *Glazing contractors:* Brown & Wicks, Romford; 'Calorex' Pilkingtons. *Patent flooring:* Runny-

[continued on page 150

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continued from page 148]

mede Rubber Tiles. *Waterproofing materials:* Secomastic Glazing Compound. *Gas fixtures:* Sugg 'Sapphire' Balance Flue Heaters; Ascot Hot Water Heaters. *Gasfittings, plumbing:* Mann & Partners; Newbury Park. *Gas-fired seed drying floor:* G. F. Rider (Process Plant) Ltd. *Electric wiring, electric light fittings, electric heating, bells:* John Hearson & Co. *Steel ventilators:* Morfax Ltd. *Sanitary fittings, door furniture:* Rownson Drew & Clydesdale Ltd. *Casements:* Fosters (Woodworkers) Ltd. *Window furniture:* Stedall & Co.; Alfred G. Roberts Ltd.; Nicholls & Clarke Ltd. *Telephones:* Post Office Telephones, Chelmsford. *Folding gates:* Messrs. Haskins. *Site fencing and gates:* Peerless Fence & Products Ltd. *Iron staircases:* S. W. Farmer & Sons. *Sunblinds:* Venetian Vogue Ltd. *Plaster:* Albert Willett & Sons. *Metalwork:* Morfax Ltd. *Joinery, shop fittings, office fittings:* Fosters (Woodworkers) Ltd. *Pea processing machine:* Bryan Corcoran Ltd. *Seed processing machine:* Robert Boby Ltd. *Cloakroom fittings:* W. M. Froy & Sons (suppliers). *Lifts:* London Lift Co. *Hoists:* Herbert Morris Ltd. *Main:* Witham Urban District Council. *Signs:* Charles S. Foster & Sons.

University Buildings at Canberra. *Architect:* Professor Brian Lewis. *General contractor:* Howie Moffat. *Sub-contractors: hardware:* Alexr. Smith & Keeler. *Steel windows:* Crittalls Manufacturing Co. *Drainage:* Making & Bearse Ltd. *Plumbing:* A. W. Robey Ltd. *Plastering:* Hook Bros.; A. Ross. *Painting:* J. W. Clarke & Son. *Terrazzo work:* A. Marchiori & Sons; Meloceo Bros. *Heating:* J. Sainsbury & Co. *Ventilation:* R. Plackett & Co. *Electrical work:* G. Pitt; W. A. Harris. *Insulation:* Bradford Insulation Co. *Refrigeration:* British General Electric Co. *Roof tiling:* Wunderlich Ltd. *Floor and wall tiling:* Australian Tessilated Tile Co.; R. Goldsby. *Fibrous plaster:* Canberra Fibrous Plaster. *Parquetry floor:* Geo. Hudson & Co. *Timber and leather panelling:* McPherson & Davies Ltd. *Thermophane double glazing:* Frank G. O'Brien Ltd. *Food lift:* Otis Elevator Ltd. *Mild steel handrail:* A.C.T. Engineering Co. *Cool room doors:* James Budge Ltd. *Fitments:* Elvin & Co.; L. J. Morgan Ltd. *Roller flyscreens:* A. F. Agnew & Co. *Fire doors:* Wormald Bros. *Strong room doors:* Chubb & Co. *Ornamental metal doors:* Artistic Steel Co. *Precast concrete work:* Picton Hopkins Ltd. *Structural steel work:* Sydney Steel Co.

Boys' Club at Stepney. *Architect:* Yorke, Rosenberg & Mardall. *General contractor:* C. J. Sims Ltd. *Sub-contractors: dampcourses:* Wm. Briggs & Sons. *Concrete blocks:* Broad & Co. *Reinforced concrete:* Twisteel Reinforcement Ltd. *Bricks:* Eastwoods Ltd. *Piling:* Pressure Piling Co. *Structural steel:* Concrete & Structural Products Ltd. *Slate cills:* Bow Slate & Enamel Co. *Roofing felt:* Wm. Briggs & Sons. *Woodblock flooring:* Jos. F. Ebner Ltd. *Patent flooring:* Marley Tile Co. *Central heating:* Chas. P. Kinnell & Co. *Stoves:* Newton Chambers Ltd. *Gas fixtures and gasfittings:* North Thames Gas Board. *Electric wiring:* Messrs. Locke & Soares Ltd. *Electric light fixtures:* Metal 'Coolicon.' *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Door furniture:* Alfred G. Roberts. *Casements and window furniture:* Aygee Ltd. *Fencing:* Bayliss Jones & Bayliss Ltd. *Balustrading:* S. W. Farmer & Son. *Joinery:* James Prepared Woodwork Ltd.

Technical College at Grays, Essex. *Architect:* H. Conolly, County Architect. *General contractors:* Richard Costain Ltd. *Sub-contractors: heating and mechanical services:* Coleman & Hosking. *Electrics:* Alpha Manufacturing & Electrical Co. *Lettering: written and applied:* The Lettering Centre. *Suspended ceiling:* Horace W. Cullum & Co. *Sanitary fittings:* Adamsez Ltd. *Decorative glazed wall tiling:* Carter & Co. *Wood block floor:* Vigers Bros. Ltd. *Chimney stack:* Chimneys Ltd. *Bricks:* Eastwoods Ltd.; Stonehenge Brick Co. *Stahlton prestressed plank floor:* Costain Concrete Co. *Structural steelwork:* Dorman Long & Co. *Plastic glaze wall finish:* Plastic Surfaces Ltd. *Coloured glazed wall tiling:* Summers & Co. *Ironmongery and door furniture:* James Gibbons Ltd. *Accotile flooring:* Neuchatel Asphalte Co. *Felt roofing:* Pilkington's Asphalte Co. *Granolithic paving:* Stuarts Granolithic Co. *Balustrades and handrails:* Culford Art Metal Co. *Patent glazing:* Williams & Williams Ltd. *Metal windows pressed, metal door and trims:* The Crittall Manufacturing Co. *Rolling shutters:* Shutter Contractors Ltd. *Folding, sliding partition:* Esavian Ltd. *Precast casing to the columns and thresholds:* Empire Stone Co. *Precast terrazzo partitions:* Mosaic & Terrazzo Precast Co. *Lighting fittings:* Troughton & Young Ltd.; The Merchant Adventurers Ltd.; The General Electric Co.; Crompton Parkinson Ltd.; Frederick Thomas Ltd. *Special electric laboratory control board:* Astral Switchgear Ltd. *Overhead busbar system:* English Electric Co. *Clocks:* Synchronome Ltd. *Bell system:* Gent & Co. *Paint:* R. Gay Ltd.; Screetons Paint Makers Ltd.; Inertol Ltd.

House at 4, The Glade, Welwyn Garden City, Hertfordshire. *Architects:* Architects' Co-Partnership. *General contractors:* R. T. Bushell & Sons. *Sub-contractors: heating:* H. Deacon Ltd. *Bricks:* Pratt (Watford) Ltd. *Slate:* Bow Slate & Enamel Co. *Roof tiling:* The Marley Tile Co. *Felt roofing:* The Northern Asphalt Co. *Beech strip flooring:* Masters & Andren Ltd. *Ironmongery:* Alfred G. Roberts Ltd. *Sliding door gear:* E. Hill Aldam & Co. *Magazine boiler:* Earlymill Ltd. *Electrical installation:* Eastern Electricity Board. *Gas Installation and appliances:* Eastern Gas Board. *Fire:* W. N. Froy & Sons. *Flush doors:* Jayanbee Joinery Ltd. *Sanitary fittings:* Adamsez Ltd. *Reconstructed stone sills:* Atlas Stone Co.

S.S. 'Orsova.' *Designer:* Brian O'Rorke. *Tables:* H. H. Martyn & Co. *Chairs, settees, altar cupboard curtains:* Maple & Co. *Carpet:* Wilton Royal Carpet Co. *Decorative feature:* Barbara Jones. *Plastics:* Thomas de la Rue. *Chairs:* Heal & Son. *Carpet:* Crossley & Co. *Tables and chairs:* Messrs. Beresford & Hicks. *Window seats, curtains and tables and wallpaper:* Waring & Gillow. *Curtains:* Elizabeth Eaton Ltd. *Plastic:* Messrs. Warerite. *Wallpaper:* Messrs. A. N. Coles, Ltd. *Tables and stools:* Orient Steam Navigation Co. *Curtains:* Gerald Holton. *Blinds:* J. Avery & Co. *Squabs:* Calico Printers Association. *Settees:* Hille, of London. *Window squabs, curtains and table, sideboard and blinds:* Hampton & Sons. *Chairs:* Finmar Ltd.; Wrinch & Sons Ltd. *Floor tiles:* Carter & Co. (London). *Tables:* Vickers-Armstrongs Ltd. *Chairs:* Russell Furnishings Ltd. *Decorative feature:* Ceri Richards. *Chairs:* Ercolani (Furniture Industries Ltd.). *Chairs and tables:* Ernest Race Ltd. *Carpet:* S. J. Stockwell (Carpets) Ltd. *Floor:* Armstrong Cork Co. *Piano:* Danemann, W., & Co. *Floor:* Korkoid Decorative Floors.

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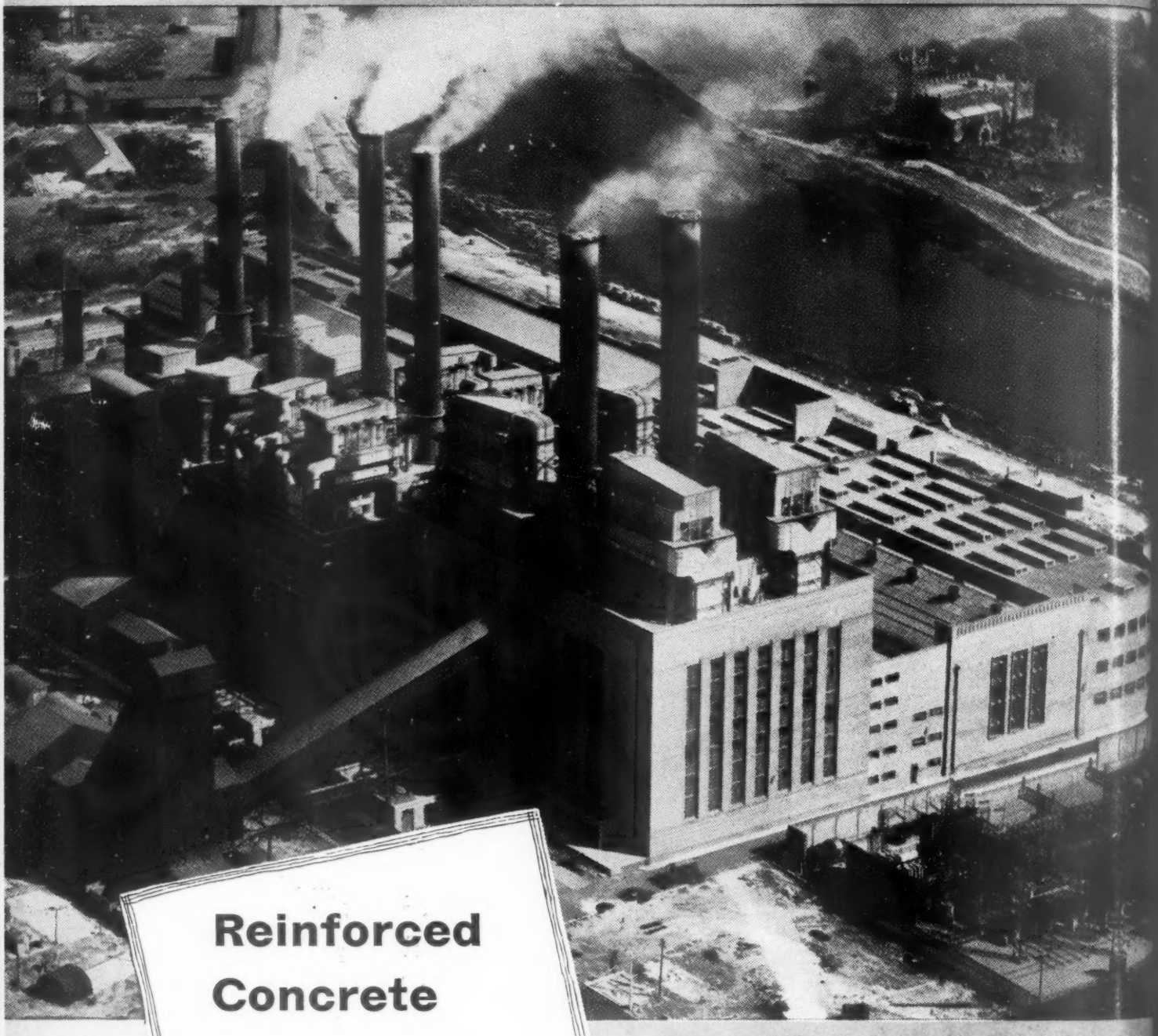

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